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Editorials

THE OVERWEIGHT HAZARD

Well indeed has it been said,

"The longer the belt, the shorter the life."

Reduction of overweight means a corresponding reduction in mortality statistics.

"Body girth and longevity vary in an inverse ratio."

Such is the finding of the insurance companies who feel an increase in mortality where it pinches the most—i. e., in the pocketbook.

Serious attention to the problem of overweight is one of the chief hopes of mortality reduction.

It is against the serious diseases of middle life and older age that the most progress needs to be made, and it is against these diseases that overweight must be fought militantly.

Overweight tends to shorten life. Definitely overweight is detrimental to health.

The most recent insurance study shows that men who are considered as distinctly obese, that is, men who are 35% or more above average weight have a mortality of 1½ times over that of average men.

These figures have been taken from a group of plus-standard overweights. In fact, the Metropolitan Life Insurance Company, an organization whose very life blood is manufactured from statistical findings, remarks upon this topic, in part:

"The greater the degree of overweight, the greater the mortality rate. Thus, in contrast with the approximately 60% excess mortality of the distinctly obese group with 35% overweight or more, men who are from 25 to 34% overweight have an excess mortality of 45%, and those 15 to 24% overweight, an excess mortality of 30%. Those but slightly overweight have a mortality only a little higher than those of average weight.

"Once full maturity has been reached, underweight, that is, weight below the average for a given age, is a decided advantage. With the

better understanding of the way tuberculosis spreads and with its ultimate conquest an attainable goal, that disease is much less a menace to young underweights than it was, and the mortality of underweights, relative to those of heavier builds, has improved.

"The most favorable build as regards mortality at the various adult ages in men is as follows; up to age 30, slight overweight; ages 30 to 39, average weight; ages 40 to 49, slight underweight; ages 50 and over, an appreciable degree of underweight.

"There are several types of overweights. The pot-bellied variety is the worst. The most recent insurance study shows that overweights whose abdominal girth was more than 2 inches greater than chest girth at full expansion, had an extra mortality of approximately 50%, over and above the excess mortality associated with overweight itself. Another study has shown that tall overweights with relatively long trunks and short legs did better than other tall overweights; but among medium height and short overweights, the reverse is true. Overweights with big chests showed up less favorably than those with smaller chest girths. Generally speaking, the solidly built, large-boned overweight is superior to the flabbier type.

"Certain serious physical defects are generally more common among overweights than those of slighter build. High blood pressure, for example, is over 2½ times as common among overweights as among persons of average weight. Albuminuria and glycosuria in significant amounts are nearly twice as frequent.

"The specific hazards of overweight include most of the important diseases of adult life, especially the cardiovascular-renal diseases, which are responsible for an increasing proportion of the death tool today. Thus, the death rate of overweights from heart disease and from cerebral hemorrhage is 1½ times that of average weights and nearly twice that of underweights. For angina pectoris, the difference is even larger. The mortality of overweights from this condition is more than twice that of average weights and 2½ times that of underweights. Bright's disease exacts 1¾ times as many deaths from overweights as from average weights and 2¼ times as many as from underweights.

THE U. S. SENATE BILL TO REGIMENT PHYSICIANS

Two brass buttons on the sacred staff of Aesculapius,—and the science of medicine stands betrayed by a brevet!

And all because Senator James Hamilton Lewis, Democratic Senator from Illinois, would secure the passage of a bill, introduced by him on July 28, 1937, to the United States Senate which would make all the physicians and the surgeons of the United States,

"Civil officers of the United States"

and require them to give any medical aid requested by an impoverished individual.

"O tempora, O mores!"
And, what price chocolate soldiers?

That science should live to see this day is one of civilization's greatest blots. For, as men and thinkers have long since discovered, little that is political is politic, and all that this socialization of medicine *a la Communiste et Socialiste* has to proffer by way of ancestry is the bar sinister of anarchy.

Hard words, these? Eh, perhaps. But look for a second at the history of this movement. Before its magnitude, the annual crop of politically inspired "Kentucky colonels" pales as the stars before the sun.

Even the closest friends of the administration admit in their secret hearts that regimentation is the sacred ideal of the powers that be. Though nature herself decrees shades and gradations of creation, *the administration does not,* and regimentation, standardization et al, is the revered Juggernaut before and beneath which, all true Americanism must be crushed!

Health of the country has suddenly become a paramount issue. *Hunger,* seemingly, has not. Yet it was lack of bread that sent the last of the Bourbons to the tumbril. Pre-revolutionary France never carried the load of tax-eaters borne by tax-paying martyrs, as does the United States today.

But, "back to our muttons."

This introduction of the bill to regiment physicians came as a neat postscript to the appearance of the Democratic "Whip," before the annual convention in June at Atlantic City, of the A. M. A.

As the spokesman of a "bunch of punks" when haled up before a Chicago court for cruel gang murders said fulsomely, and in substance,

"Ah, we knew we'd get this man. He was a doctor. Doctors is easy. They always goes when they thinks anybody needs 'em. Doctors believe anything."

Evidently doctors do. For when the Senator from Illinois appeared before this A. M. A. convention and spoke as we re-print below the doctors believed him. And now he comes out and says that if this proposed bill passes, and—God help medicine and humanity if it does—that,—

"The bill provides that physicians and hospitals giving service to indigent individuals would be authorized to submit bills to the social security board for payment."

The which of course means another whack at the tax-payer, of which ranks bureaucratic employes number not. Further,

"There will be penalties. Among others any doctor who refuses to give aid to an indigent person, or who submits a fraudulent or exorbitant bill to the social security boards may be subjected to a fine of $1,000 or imprisonment of not more than three months."

Who knows what is a "fraudulent" or an "exorbitant bill?" Aren't "indigent persons" already cared for by state, county or municipal hospitals?

Quoting from the *Chicago Tribune* of Thursday, July 29, 1937, their press dispatch on this topic says in part:

"In a preamble to the bill the Illinois senator set forth the grounds on which he bases his proposal for collectivized medicine.

"Pointing out that the federal government now has recognized its social responsibility to its citizens by the enactment of the social security act, Lewis declared that an extension of such responsibility is necessary to provide adequate medical care and attention for the impoverished and needy 'to assure the full enjoyment of social security.'

ASKS FOR ADVICE

"Lewis first made his suggestion in a speech before the medical association convention in Atlantic City, N. J., early in June. At that time he asked the association for advice in formulating a public health policy.

"By the assertion he had 'just talked to the President,' the senator gave at least some of his convention listeners the idea he was carrying a message from Mr. Roosevelt. Others were convinced, however, the Chicago legislator was acting entirely on his own.

"Lewis says himself he offered the bill on his own responsibility; that it was proposed by no organization or interest. He also admitted his speech in Atlantic City stirred up a great controversy and that the A. M. A. wrote a letter to Mr. Roosevelt expressing their apprehensions about the advisability of such a law.

"In Chicago, Dr. Olin West, secretary of the medical association, termed it the 'most complete regimentation of physicians that possibly could be accomplished.'

" 'From press dispatches—I haven't yet seen a copy of the bill—the Lewis measure appears opposed to every policy that the organized medical profession has stood for,' said Dr. West."

Those who heard the Senator from Illinois when on the morning of June 10, 1937, he stood before the House of Delegates of the A. M. A. assembled in convention and stressed the facts that were the handwriting on the wall for the bill now introduced they were for the most part so benumbed by the Senator's famous siren tongue that they could not read between the lines. Some of the cagy-eared picked up their auricular organs and hem-hemmed to themselves,—and opened their eyes and set their teeth when in the June 26 issue of J. A. M. A. was reprinted the Senator's address. Because of the importance of that address it is reprinted here. Careful reading of it is urged upon every physician. To epitomize it accurately, honestly would require the penetration of Patrick Henry. For this speech seduced when it pretended to save and its every phrase is a Judas-phrase in its attitudes towards medicine and its rights and the rights of the medical profession both as scientists and as citizens.

From start to finish this masterpiece of political Engish is a push-lined threat, hypothecating what *will* happen that *will be worse, far worse* if the medical profession does not stand up and swallow this insulting dose of communistic nostrum that has been so ably mixed in Washington, D. C. "The Senator states he does not agree with the committee.

"The Senator gave assurance that the Social Security Act is to be revised at this Session of the Legislature and that he is on the committee from the Senate designated to write in proposed changes. He informed the House that some of the members of the committee are firmly of the belief that all physicians practicing medicine in any form should be examined and licensed by the Government as well as by the various States, and that it has been proposed that they be re-examined every five years.

"The Senator stated that there is a new order along Social lines in this Country and the Medical Profession alone is not affected, but that it will affect all other professions and business in general, *even his own, the legal profession,* must have some readjustments.

"He stated that he does not agree with other members of the Senate Committee who believe that a plan to provide medical care for the underprivileged in this Country supported by taxation, should be controlled by political appointees, but that it should be nept under the control of the Medical profession. He said they are even contemplating the placing of physicians directly under Governmental control as was the case with the Medical Corps of the Army during the late World War."

May we remind the profession that "there are none so deaf as those that will not hear, and none so blind as those who will not see?"

He who lives by theory alone—and in Washington's tax-financed aristocracy that appears to be the medium of support—is on a par with making a living by following the form sheets of horse races.

Doctors, each and every one of you please read and digest every word of the speech of Senator Lewis. Then you will be prepared for the shock you will get when you read the bill he introduced to the Senate on Juy 28, 1937.

SENATOR LEWIS' SPEECH IN DETAIL

Here is a reprint of the limpid, silvery oratory with which the Senator from Illinois filled the ears of the members of the House of Delegates who attended the convention of the American Medical Association in Atlantic City, N. J., during June, 1937. The sons of scalpel and bolus had forgotten to stop their ears with wax, a la Homer. So they were beguiled.

But the *eyes* of those unfortunate listeners had not been sealed. Nor are they now! And a careful perusal of the Senator's speech, in *black and white,* will reveal in an instant the preponderance of BLACK over white where the medical profession is concerned.

Gentlemen of medicine, we present you, in his own words and specious phraseology, as he spoke at the A. M. A. Convention,—SENATOR LEWIS.

I recall with great gratification when you did me the compliment, on the suggestion of our distinguished fellow citizen Dr. Fishbein and your organization, to let me have some words with you in a previous meeting. Then I boldly took the liberty to chide my brother profession on the fact that they remained always doctors and declined in the political world to be citizens. I recall that I dared to point out the changing affairs coming in the world, and how I saw that the influence of the doctor in the family and on the citizens where he lived was going to be so necessary that, if he exerted it, much would be done to avoid what I saw was a coming complication and serious confusion. If he deferred on the delicacy which many of them have—indeed all of them—that being doctors they must keep hands off of political subjects, there would be much to regret. There would be so few laying on hands in an unselfish attitude to win respect for the physicians.

Today you have been kind enough to let me visit for some reasons that all of you have not had time to understand. That is why I so audaciously asked the privilege to speak again to you.

I thank you, dear Mr. Chairman, for your reference to me, particularly your kindly and generous flattery as to the kind of Senator you were good enough to speak of. But I want to confide to you something very confidentially among professional brethren—I wouldn't attach too much importance to that designation called "Senator." . . .

[Here Senator Lewis interspersed an anecdote about the Senate.]

Doctors, I have a few words that you will allow me. I am sure, to express. I wanted to have some words with you, not to advise you, but to ask your advice, that you may understand my position. Busy as you are in your own matters, I reveal to you that which has been greatly disturbing me.

I helped write, helped prepare, and naturally as a whip and the parliamentarian of the Senate helped pass, the law you refer to as the Social Security Law. I address myself to that feature which concerns the doctors. I have not been able to agree with the gentlemen of the committee and find myself very much at variance with nearly every one who seems to touch this subject.

In the first place, I want you to know that I have felt that our country is so far away from the necessity of directing matters of the application of medicine as coming from you gentlemen that when we did approach

it we approached it as a political subject. We approached it on the basis of what might be called charity and relief. I fear we quite overlooked that there was a scientific situation that had to be considered in order that justice be done all those who would be affected by the result.

You gentlemen of the profession hesitated to touch this subject. Many who felt kindly, and who in your local organization have ever done so much to aid the miserable and relieve the depressed, still shrunk to the point almost of resentment against government assuming to sit in direction as to your method of the application of your science. There was within you that in which I assure you the law and the lawyer quite fully conjoin with you: a resentment against that thing called government assuming to dominate you, control and direct you in the matters where your discretion, guided by your sense of right and your learning, directed through your years of experience, should be the sole and whole influence.

You hesitated to accept the suggestion and you naturally felt that there was an attempt on the part of the government to take from you initiative and independence of two relations, one as doctor, the other in your contractual relation of doctor and patient. I beg to say to you that you have reached a point where the change in all government must attract your attention. If you feel, dear gentlemen, that setting about in the pursuit of your undertaking and preparing the course of this great profession which you undertake to guide there has entered something of innovation and invasion, I beseech you to pause and realize that there is nothing that is not now undergoing some form of encroachment by those who fancy they know a system better than that prevailing, or by those who, because of power politically, dominate with the control an office may give.

May I speak of myself? Where I am we have a band of men among whom is your servant. We are having serious war against what is known as a set of rules called Supreme Court of the United States Rules. They are a body of law in which the whole profession of the law and its method of practice is being revised. A new system is being put upon the lawyer, beneficial let us feel in many respects, to redeem the law from being looked on as an instrument of either mystery or persecution, but which we as a profession hesitate to accept. We have been fighting and continuously opposing it, and from the very spiritual reason that you gentlemen in your profession have not been inclined, taking you generally, to adopt this invasion upon yourselves.

But, doctors, the question for you is not whether you like it or whether you don't; whether within yourselves you feel you are better for it individually or not. The question for you is, What is to be done about it? I want you to recognize one of those who recall that all your past has been that of the doctor and its patient. The patient steps up now and says "I have a voice unto myself. I am the subject of this treatment, and I am either to be the beneficiary or the victim of your procedure." Yes, and then he is having those around him that teach "Well, what right has this man anyhow?"

"He is a man. He has a right as a man."

"Correct."

"And he has a right to learn these systems which he speaks of as medicine."

"Also correct."

"But what right has he to organize a society and say to his fellow: 'You can't come into this society unless you conform to certain regulations we have made for you and then pass examination and in this be so complete that we will give you our certificate' and yet in the meantime turn to the state and say: 'But you can't make a certificate for us or create a society or organization that prescribes limitations.'"

Then comes the other to rise up and say: "Yes, but you doctors have been a busy lot dividing yourself between those who sincerely in your profession seek to alleviate distress and others who look upon your profession as an avenue and an agency of enriching yourself, and between these two haven't you overlooked the fact as to who you are? You forget that everybody, around you has been regulated by the new order of government. That man James Hamilton Lewis and his colleagues, who are they? They have from time to time been compelled to submit first to their bar association, then to some regulation, then to the right of the judge to expel them from practice, and now under the new theory their higher court, called the Supreme Court, to give the privilege even to let them practice, and if to practice to reserve the right to reform them, supervise them and dismiss them. In addition to this there has been created for those lawyers the right of the judge to name any one of them to defend and represent any human being, and as their oath to their duty is similar to that which is your distinguished Grecian oath to your profession, he has no right to complain. And if he attempts to do so he will be dismissed from the privileges of collecting his money by the law."

They turn to you doctors and say: "Do you recognize, Mr. Doctor, something else of yourself? What rights have you, sir? You have learned this that gratifies you and in your heart you would serve your fellow man. That is gratifying to all those who know you. But what right have you to charge money for it? Where do you get the privilege of exacting the right to make your fellow man pay you? You get it because you give a consideration of service and you have a right to have the exaction of a fair compensation. But you go further. The state authorized you as an officer of the state to proceed into the tribunals of the state called the courts to enforce payment." Do you know, you can't collect your money, you can't testify? You have served a man a year or two, and nature in the course of things takes him away. He has a large estate or small; we will speak of the large one. You know what is due you. Do you think you can get it? Under an ancient system of the law handed down long ago to prevent the living from putting words in the mouth of the dead and thus working a fraud, there is a provision of the law which we adopted that prohibits a man who brings suit against that which is dead from taking the witness stand; he cannot testify. What is the result on the doctor? The result is you can't get on the stand and testify how long you have served that man, the

nature of his malady, and bring in your brethren to show that your services called for scientific application, and you are not allowed to speak of what would be the value of your service. You must take your chances to try to get your money out of the administrator, the executor of the will, by whatever system can be devised by those of your brethren who know nothing about that which you could have testified had you been allowed to tell the truth about it.

I mention this only to show how little you have been regarded within the processes of the law as to your real rights in the collection of that which is due you.

In the meantime, how do you think you stand now? You are giving attention for a moment to some advice from one of your fellow citizens on a matter which he dares to assume you have not thought about and to which he presses you now for serious deliberation. Are you aware that in the last forty-five years there has been a gradual accumulation in matters of national health, immigration, etc., of a form of federal procedure touching your conduct on certain classes of people—sometimes we speak of them as foreigners and sometimes immigrants—under the narcotic administration? Are you aware that you have been admitted to the practice in the state in which you live, that under that practice you are conforming to some regulations? But I propound to you: What right have you to take up any of these matters federal? Where do you get your rights? I am a lawyer. I must be admitted to my state bar; I must be admitted to the county bar, but I must be admitted to the United States federal courts before I can rise in a federal court to seek in behalf of my client his rights under the federal law. Do you know what is going to happen to you? That is why I want a word with you seriously. You are going to have a certain set of individuals, thoughtless from my point of view, meaning nothing unkindly to them, who are shortly going to demand of you that there be a system of examination and application by the federal government on every doctor of America and to prove his right to be admitted to practice under the federal law in addition to that which he is now enjoying under his local acts. Then we will come about to the thing which I am utterly against and wholly abhor but which I tell you is on its way: the designation of a certain class of doctors named by the President or by some officers of the federal government, who then become a board who are to pass on their fellow doctors having the right to be admitted to be a practitioner under the federal law.

Naturally, something in you says "Lewis, you don't really mean that there is an attitude of mind of that kind in the land?" And I am compelled to say to you, my dear comrade, not only do I mean there is such a prospect, I mean to come here today and tell you it is on you and you have got to pause to consider it, and that is why I have come to ask your advice.

I helped to draw the provision that relates to the doctor. I have been one of those, as our dear friends from Chicago will tell you, who advocate that you doctors take into your hands the system by which the poor could be cared for, hospitalization provided for, a system of guardianship so secure that the individual can be counted on at all times to be taken care of, however poor, however unfortunate. You say "As patient?" Your friend Lewis says "No." I dismiss the thought of patient, much as I know you have to carry it. I am compelled to tell you that government is on its way to saying to you "Hold up here, Mr. Doctor, we are not asking you to do anything about a patient. Where do you get this that we hear about that we are daring to interfere with your personal relations between you and your patients? We know nothing of patient, don't recognize its existence. It is your creation. We recognize an instrument called citizen who is essential to the welfare of government. He takes the form of man or woman. You have professed to be able to help him carry on his life. We need his life for usefulness in civil affairs, for the conduct of affairs of life in its civil nature, in military for the defense of his nation. And now since you assume to take care of the mother of that child that is to come forward and the mother herself that is to give birth to and help guide it, and the father who must help maintain and sustain it, we are compelled to tell you that we have got to treat you as an officer of the federal government and turn you into being such and ask you to consider the subject of yourself as an official of the federal government taking care of the citizen."

Then, since that is the position in which you are going soon to be put and which every hour you reach nearer and nearer, pardon me if as a brother professional man it is nothing less than absurd for men to come around you and say "This is an invasion, it ought to be resisted, it ought to be resisted, it ought not to be adopted."

Your answer is "It may be you are right, but it is the policy that seems to possess mankind in his advances all over the world, and since it is to us to be acted upon, Lewis has come down to make this suggestion."

Gentlemen, I desire to reverse the situation. An amendment is now pending. I have had it hung up as like on a hook so I could come down and chat with you. I want the position wholly changed. Instead of the government taking charge of directing the doctor as to what is to be done in the matters where his science is of first application, I want the government to place the doctor in the position where he can direct the government.

Two things are ahead of you, brethren. You come down where I am and listen to the quiet and silent chat and then the whispered voice that beseeches you please not to communicate them as the source of your information; contemplate the movement already afoot by certain well meaning gentlemen who fear some other gentleman and who suggest to your representatives in public life the necessity of picking out certain favorites and constituting them as a body that shall have the full control of your great profession in order to tell each where they shall act, how they shall act, in what manner they shall act, and in every manner they shall serve. Come down close and find out how severe it is we have to contest against that and find oftentimes we are charged with ill manner because we don't wish to have those things whispered to us quietly to be put into the law without some voice to the general profession.

That brings me to say to you it is my judgment that the time is come when you have got to say to your-

self "We were willing, and have been as members of organization, to do charity everywhere. We have been doing it for constant years. We pay out of our pocket for the medicine. We tender such services as we can. We give our hours at the expense of other patients to whom we owe an obligation. We join wherever we can in the local government or the state government in every form possible. We obtain no compensation. We have no manner of receiving it. We lose that which we could have made from other sources. And you, Mr. Government, while you have been busy considering what you feel should be the welfare of the needy, you have given no thought as to the rights of the individual you enforce to serve the needy."

Where, then, does that doctor stand?

Physicians, I have a proposition which I take the liberty to give to you, for it is on that that I ask that at some subsequent time you will be so good as to consider that I might through the offices have the benefit of your suggestion. It is that which I feel our committee, knowing that I am to come before you, is expecting to hear from. *I am pleased to tell you that as I left I called the President and told him I was on my way to have a conversation with you gentlemen. I would like to deliver from the President of the United States a message coming direct with his authority. He said that I was authorized to say to you he knew something of your meeting, he had been for some time observing the courses of the doctor, that he was not far removed from constantly keeping up with the features of the profession, and he wished you success as to your undertaking. If I use his exact words, he hoped that you would find a way to cooperate with him in such method as you would jointly find would be to the service of the helpless and the afflicted within such province as you felt government should undertake.* I deliver the message of the President and assure you it was a source of great pleasure that he understood I was to be here.

And here I take the liberty now to define to you what I propose should be the course as to yourselves. That I see that you are advancing to be treated as a federal official there can be no doubt; that you are on the way so soon as you qualify as a doctor in your state and your local situation, to be soon made a member enlisted in those of the profession of the federal government, and as such to be put something in the position of a captain and officer of the army and the navy. You are to be put in the position as one who is to be recognized by the government and subject to the service of the government in protecting your fellow citizen, but in the meantime I trust recognized as having your own rights which at the time may be properly preserved and guarded.

May I offer you the suggestion I have pending? I feel it is most fair to say to a doctor "Doctor, please step out from your business or family." You have children, too, and they ought to be educated; you have homes to be cared for; you have a profession to maintain; you have a prestige to uphold. I don't feel it is right, sir, despite all these attitudes of mind you get from those who have not had time to think upon it to say "Please step aside from all of this, sir, and give your time wholly and largely to the instrumentality necessary to aid those in distress and see they are lifted from it, cared for, hospitalized, medicine provided, in care and watchfulness day after day, and while it is at the expense of yourself financially and in all respect perfected, you owe it."

"To whom?"

"You owe it to what is called society."

"Am I not one of them?"

"One of what?"

"One of the thing you call society."

"Yes."

"Well, is nothing owing to me? Who paid for this education I have? Who paid for the years in which I have gone to obtain it? Who is likely to take care of those whom I am supposed to be maintaining? In the meantime, what effort is being made at least to recognize me as being one of this society in having something of the similar rights of those to whom you now send me to give my whole time and devotion?"

Therefore, dear gentlemen, I will with your consent when you have later given it consideration, if you feel it is agreeable, press on this branch that happens to be mine which I serve (you know what is called chairman of a subcommittee) that I want the present Social Security Law amended. There are amendments pending. You gentlemen too well know that the law is not new and there will be many changes. There are many eminent doctors who feel the Swedish method should be taken up by us and practically adopted, some others the German, that which prevails in Denmark, and interesting to add there is a system of which I knew absolutely nothing which seems to come from China. But the suggestion is that nevertheless you be placed in the position of complete obedience to whatever the law may enforce. I say I want that poor, that afflicted, that suddenly injured, having no funds, unable to make his private, individual contract, to have the right to summon any doctor all around him, however high, however elevated, without regard to what his elevation is, the quickest, the nearest to him for service; that doctor at once turns to the obedience of the demand, to the obedience of the need, and this patient is taken charge of at once as if he had been employed by a paying patient. He promptly sees the need of this patient for hospital, and to the extent that the patient needs the hospital this doctor has a right by virtue of the fact that he is now a federal auxiliary to step into any hospital of any kind at once and have this person attended according to the need as the doctor sees it.

And then what shall follow? It is that on which I am having my discussion. I insist that that doctor, chosen as he is at any time by any one in this need, shall have promptly the right to write down his bill, his exact charge, what he feels with his sense of honor is a fair charge for the service he is doing the patient, for the service he is giving at the hospital, for the medicine he may have to more or less if not credit for be responsible for, and he frames this charge in an intelligible, simple manner, in an ordinary bill. He takes this bill by himself or by mail or by his messenger at once to the agency where this doctor serves who represents the social service and has this bill promptly filed. He may have to repeat this a dozen times a week, he may have to do it a hundred times a month, but wherever he does this work he sends his bill for this

work (I come back to you now) not to the patient but to the government whose citizen you are protecting, whose agency and power and force are needed for the carrying on of the thing they call the society you are preserving. With this bill so sent in, you promptly are paid on the theory that, of course, you would not defraud your government, but with a provision in the law that any doctor who could descend to take advantage in the way of price or misrepresentation be treated like any other fraud, and any patient who represented being unable to pay and took advantage of the doctor, taking his services as well as from the government, be likewise treated as a direct instrument of the fraud and offense against the government; and that by this system we openly announce and we publicly proclaim that doctor as having the right to practice as an immediate representative of the federal government in whatever he attempts to do in behalf of that particular being and instrument called the citizen; that his compensations be so arranged and that he arrange them in such manner consistent with his own sense of honor and proportionate with what he knows has been the service he has been giving.

And now, dear friends, I conclude. As you know from my remarks, I am a lawyer—not always successful. I have had the usual difficulties, the ups and downs that usually follow, but I have not been without experiences in connection with your distinguished profession in many different degrees. I do not think it wise that you doctors should have this system of your compensations put under the control of gentlemen who are to be appointed to be in control of the board and to be given the domination of these privileges as an opportunity for political office. I have seen lately, and I mean nothing unkind—I am speaking to my brethren of the profession in the sense of our respect for each other, and have watched attendance to the poor creatures victims of the World War and have seen something of the service administered to them and the methods of its administration through those who are appointed as political office appointees, and those appointees, meaning ever so well, let it be understood, in all government without regard of politics of any nature. I have watched it day by day grow to where they have so imposed on the government and unhappily the victims of the disease and disorder until the whole thing has been converted into a political machine that has worked a persecution on the afflicted and a robbery on the citizen. I can't see how that can any longer continue among an intelligent body and a patriotic order of citizen. I therefore, my brethren, can't accept—until I get better advices I decline to accept—that this board that is to be constituted is to be made up of political appointees called Democrats or Republicans or whatever designation you please, whose mere political appointees shall have the right to name those who shall sit as to your amount of fees, have a right to revise your bill, consider your services, passing judgment and review on them. I cannot accept it.

I want consideration from you when you have time to reflect on it. What method would you suggest to us in one of complete fairness to you, to your profession, of a system of appointees who shall be those who shall sit in judgment on your fees, the methods of your payment, and, if you please, sometimes the quantity and quality of it? And who is it that shall sit to decide as to each of these geographic localities what particular boards shall in that locality make the board to which you must send your bill and from whom you must take your direction or counsel?

What method do you advise by which you shall not be put out of your character as doctors and subjected to merely a set of servants under the orders of those who call themselves political appointees? I can't take the latter. I am in revolt, and I burden you by coming over here and asking that I may be heard, because on this particular feature I am so much at variance with many around me that I fear I must confide to you that there is a great deal of distraction, almost sometimes amounting to violence in dispute.

I want you to take this subject in hand. There is the law. It is very deficient. Many of the principal features of the right to enter into the subject at all over the state and the government, I might say, of your offices, your duties, was very much debated. That is past the time. The question for you and which I am seeking is how to deal with the doctor, what to do with his profession, what to do with his science that he has equipped himself to discharge, and it is that that I have come to seek from you that you take charge of the subject and give advice to your government, that you please offer counsel to us, as to what in justice to your whole profession first would be the best system to put into effect some organization that shall have the voice with the doctors dealing with the doctors. Second, what shall be the qualification apart from medicine, of character or of experience, if you have it, of those who will serve on the board in order to be those who directly serve to the local board? In other words, dear gentlemen, your principal board in Washington I am worried about. I don't want it made up of gentlemen appointed merely because they may have been effective in stuffing some ballot box. Nor do I want that other set who are to be rewarded for vigorous party service, however sincere, but whose knowledge of medicine consists of that which a hen would have of a neighbor about to pick up her lunch. I want some system that will assure that man who is on the way to serve that patient that he is going to be treated by those who know the value of what he is doing, on the one hand, the service of what he is doing, and that he too be protected by his government as one of those citizens and patriots that they are seeking to preserve.

Citizens, you have a great oportunity and before you a great authority. It is for you to say whether this great system of humanity is to be successful or whether you shall shrink again out of a sense of modesty and not wishng to touch public affairs allow it to drift to where it will be handled by those for political objects or other purposes that shall destroy its great usefulness. It is to you we who are public characters and public agencies in your line must look.

DR. CHARLES BERT REED IS TENDERED HONORARIUM

The golden anniversary of Dr. Charles Bert Reed's practice of medicine was the occasion of an elaborate testimonial dinner for this gifted physician, given by Wesley Memorial Hospital, Chicago, at the Union League Club.

Dr. Reed was graduated from Rush Medical with the Class of 1887. Numerous of the surviving members of that class attended the dinner, while others, among hundreds of eminent citizens from coast to coast were represented by telegrams or cables.

Dr. John H. DeLacy gave the invocation, and the address of welcome was by Paul H. Fesler, superintendent of Wesley Memorial Hospital.

"Wesley hospital has been through a siege," said Fesler in part. "But during the past five years when wolves were at both the front and the back doors. Dr. Reed's motto was "Who is afraid of the big, bad wolf?" In the battles of the American Medical Association, with economic problems, no one has been more aggressive, fearless or unrelenting than Dr. Charles Bert Reed. To such men as Dr. Reed, doctors, hospitals, and the public, owe much. I now have the honor to present Dr. Phillip H. Kreuscher."

To Dr. Kreuscher's able tongue fell a recapitulation of the life of Dr. Reed, from birth up until his graduation from West Branch High School, and later the Rush Medical College.

"His honors have been many," remarked Dr. Kreuscher. "Dr. Reed was president of the Chicago Medical Society in 1931. In 1935-36 he was president of the Illinois State Medical Society.

In 1936-37 he was a member of the Council of the Illinois State Medical Society and he is an Associate Professor of Obstetrics of Northwestern University Medical School. His hobbies are fishing, not in Wisconsin, but rather into the wild and uninhabited districts of northern Canada. Canoeing is another hobby of Dr. Reed's. As to literature, his efforts in that direction savor genuinely of genius. His scientific writings have encompassed many topics including medical books for nurses; volumes on gynecology, and lay writings that will live through the years. Titles of these include "Duke," "First Great Canadian," "Masters of the Wilderness," "Four Way Lodge," "Curse of Cahawha," "Eleanor of Acquitaine," "Obstetrics for Nurses," "Operative Obstetrics on the Mannikin," "Clopton Havers," and "Albrecht von Haller." Dr. Armstrong, a confrere in the class of 1887 will now speak to us."

"I am what is a rarity at present," said Dr. Charles A. Armstrong, in part: "that is, a country practitioner. O'Brien has laid down the requisites of a fine postprandial talk when he says, 'make a good beginning, and a good ending and get the two damn close together.'

"At the end of the term at Rush it was the custom to hand the students envelopes containing slips of paper. If a man received a white slip, he had 'passed.' If the slip were green, he had to take the year's work over again. In '87 the men received their envelopes and when Dr. Reed opened his and found a white slip he let out a mighty yell and kicked the chair ahead of him so that it fell to pieces. One of the professors remonstrated and said Dr. Reed would have to pay $5.00 for the chair. With that, Dr. Reed pulled out a ten dollar bill, handed it to the professor and kicked another chair to pieces! However, that ten dollars was probably never put in the treasury of the school.

"Out of a class of 138 there are about 25 left who are evidently not wanted above and for whom the other place is too crowded.

"All the class is so glad you are here, Dr. Reed, and we hope you will stay here for a long time and that you will be happy with your family and at Wesley."

Dr. Fred G. Novy, another classmate who has gone to "bugs" and is Professor of Bacteriology at Michigan University, was next introduced and said:

"When Dr. Reed and I attended high school, there was only one in Chicago. This later became West Side High School. Dr. Reed went to Ann Arbor for a couple of years. I had the police commissioner look up records as to why he left so early. However, the report was negative.

"Dr. Reed is a good fisherman, a lover of animals, and he is a good doctor. Dr. Reed, we hope you will have many years of health and all replete with the fullest satisfaction.

Dr. Robert Blue, Chairman of the Staff of Wesley Hospital, said: "I have known Dr. Reed for more than 30 years. We became acquainted when I was a Junior at medical school and I have been enlarging and expanding my vocabulary

ever since that time. If I studied Webster's every day I could never acquire a vocabulary equal to Dr. Reed's. Dr. Reed is remarkable in his facility of expression, and in the pungency of his remarks.

"Knowing Dr. Reed as I do, I have to pinch myself to realize this is his fiftieth anniversary. The older man's advice in council has more weight—his knowledge is tempered by experience. Age is a condition of the body and does not necessarily affect the mind. Goethe did creative work when he was an old man. Bacon has said: 'I have discovered it is possible for any man to know many things well.' Bailey—'Mind is like the firefly; it only shines when on the wing. When once at rest, it dies.' But Dr. Reed has never rested. is mind is supple as the willow.

"Heartiest congratulations from the Staff at the Hospital and appreciation for your work for the Hospital. We look forward to many more years of work together."

Dr. Kreuscher remarked next: "Some years ago in Nebraska, I had the pleasure of meeting a young man whom everybody seemed to respect and admire. As Dean of the Medical Department of the University of Nebraska, he built up a first rate school. He came to Chicago to Northwestern and is now Dean of Medicine at Northwestern University Medical School. I refer to Dr. Irving S. Cutter. Said Dr. Cutter, "I think that no occasion of this sort is quite in keeping with what it ought to be. I should like to see the great gathering of the children whom Dr. Reed has brought into the world. We would have to hire the stadium and possibly an addition.

"My part tonight is to express our appreciation for Dr. Reed's artistic side. Mr. J. Christian Bay of the Crerar Library sent me his 'Biography of Albrecht V. Haller.' Here is a real writer, I thought. Others have followed since—hidden brochures, and each a gem in its way. He is a philosopher—a John Burroughs and even better for he has held the attention of everyone. His medical writings will survive for decades—for centuries, but what he has done in a literary way has brought into the Engish language some of the most beautiful, true and artistic creations of letters."

The next speaker was the President of the Board of Wesley Hospital, Frederick J. Thielbar, who said: "I can't compete with the men who have worked with Dr. Reed. I have known him for 30 years, and these are some of the reasons why I admire him.

"One night I attended the opera at New Orleans and I talked with a man who had left Chicago because 'he did not want to climb a ladder for a dollar.' A successful man never retraces his steps. I have respect for a man who can climb ladders in Chicago and get to the top. Seventy-five per cent drop out. Dr. Reed has endured—a tremendous accomplishment. He has climbed up and up for 50 years, and we can depend on him for another 50 years. I admire a professional man with high ideals who lives up to them. Dr. Reed has done that. Great men must be individualists. There will be no great men in the future if we have no rugged individualists but only a proletariat which has been fused into one mass. The Profession has its back against the wall. It is being attacked. Dr. Reed is a rugged individualist, but he has brought in other elements—a higher culture, a higher refinement to medicine. The man who has time to give his attention to other things that make for refinement and culture, will be a greater man because of it. The younger man wants nothing but operations and the practice of medicine. He does not plan for a full well developed professional life. Dr. Reed, on the contrary, is a great doctor, obstetrician and a man of letters. I want to read, too, a letter from the Board of Trustees of Wesley Memorial Hospital to Dr. Reed: 'By direction of the Board of Trustees, I have been instructed to send you the congratulations of the Board on this anniversary date and to express appreciation of the years of work at Wesley and it is our hope that your direction will continue for years more.'"

Dr. Chas. E. Humiston said:

"I take it that those men who have been called upon knew about it. I can testify that I for one was above suspecting it. I appreciate the honor of standing up and saying that I have known Dr. Reed.

"We only hope he will be spared long enough to demonstrate to the few who do not know him that he is moving in the right direction. I count it a privilege to have known Dr. Reed. Many of you are testifying as to your high regard of Dr. Reed, and that raises you in my estimation.

"Integrity, fearlessness, dependability, a fighter yet. I congratulate you on the eminence to which you have risen, and hope you will con-

tinue to fight for the correction of wrongs. We expect valued service, and will not be disappointed."

Dr. Kreuscher then read telegrams and letters from friends of Dr. Reed, and added, "Charlie, it isn't quitting time. There is lots of work to be done. We wish not a return of another 50 year anniversary, but many more years of activity."

We shall now hear a solo, "Take Joy Home."

In conclusion Dr. Kreuscher said: "Thus endeth for all of us a perfect day."

To which Dr. Reed responded as presented herewith.

SPEECH OF RESPONSE BY CHARLES BERT REED

Mr. Toastmaster and My Good Friends: I would be insensible indeed if I did not feel deeply and keenly the spirit of this occasion. I am double indebted to the young people who initiated this testimonial and brought it to so beautiful a consumation as well as to the more than generous friends who have left their homes and other pressing interests to make this event memorable and distinguished by their presence.

The greeting from the Staff of Wesley is highly gratifying and encouraging as approval by one's colleagues must always be, while the felicitous manner in which it was delivered by Dr. Blue adds a note of personal sincerity and affection to the report which fills the heart with pride.

The kindly message which Mr. Thielbar bears from the Board of Trustees is significant of the closer and more cordial relation which now exists between that body and the staff. It is especially welcome as a mark of the warm cooperative spirit which now prevails as well as the personal recognition which it so pleasantly betokens.

I trust Mr. Thielbar will assure the Board of the comfort and satisfaction which that message brings.

I rejoice that I am here this evening for many reasons—First that I am here—and that I can be encouraged in that satisfaction by this gracious company.

Again that I may have the pleasure of meeting members of my class whom I have not seen for 50 years.

In fact, I am told only 22 remain out of the 137 who graduated then and of these only three or four of us have met even occasionally since.

It is a pleasure to look back also upon this last half century—which my friend Dr. Carr has so aptly named the "Age of Osler's Eleven Editions" and realize that more progress has been made in the science of medicine than in all previous history of the world.

In so short a time have thirty or forty plagues, pests and epidemics been conquered, glandular and alergic disorders have been etiologically exposed and therapeutically remedied while surgery both local and general has undergone the most marvelous transformations.

Again I rejoice in the final settlement of the Wesley Hospital question. Fifty years ago the corporation received its legal authorization, in 1890 it was relocated at 25th and Dearborn Streets by the beneficence of Mr. Deering, in 1913 we began to hear about a new hospital, then came the war. In 1929 the thought of a new building on McKinlock Campus was again in strong favor, then came the depression. In 1936 the idea was hopefully but incredulously referred to—when out of the murk of disarray stepped Mr. Jones with the ransom of an Emperor in one hand and the plans of our magnificent new building in the other. As you all know, the first spadeful of earth was turned up four days ago.

Another event which has, I think, been mentally illuminating to me and forms a part of our picture was the Hobby Show which was produced by the Medical Society a few weeks ago.

In this exhibit I was amazed by the extent, variety and excellence of the work which the doctors brought to our attention.

Here were paintings, sculpture and photography of every kind, wood carving and cabinet making, rug weaving and toy ship building, collections of old pistols from the earliest day to the present, collections of bows by modern archers, trophies of the hunt in foreign lands, and exquisite collections of bird's nests—not the ordinary work of Jerry builders—but real architectural triumphs by experts. Vocalists, performers on the violin, the flute, the piano and the harp were numerous and of unusual excellence, added further artistry to the display. It would not have been possible 50 years ago.

It will be asked at once how a busy doctor can find time to do such work without negect of practice, or without the resentment of his jealous professional mistress.

If a man can devote himself to pure science like Dr. Novy, the problem is simple and neither his wife nor his mistress will regard his alien concentration as a violation of the Seventh commandment, but when the human element enters, as it must in general practice, the problem is more involved.

Here the doctor carries not only the responsibility of the disease and its management but also the burden of anxiety from family and friends, which markedly intensifies his solicitude and when it becomes too heavy, as when a tragedy appears—the doctor seeks a way of escape, he seeks a concentration of mind elsewhere which gradually composes his soul to meet again with courage and fortitude the problems of existence.

Furthermore, some men are swept enthusiastically into a medical practice which wholly absorbs them but some cellule of the soul has been neglected. As the man grows the cellule grows in size and resentment, until it demands attention as a Supreme Feeling which will be no longer denied.

The doctor is compelled to relent. At first tentatively but less and less reluctantly he yields to the feeling which gradually involves the mouth and lips for horn, song and flute, the arms, fingers and feet for harp and piano, painting and sculpture and so on until a most excellent technical dexterity is unconsciously acquired and the soul rejoices in the new freedom a complete humanized harmony—with no more difficulty than that of learning to walk.

Furthermore, some of these men have been touched by the magic Song of the Sirens. This song is no mere sensual appeal as Leith has shown but rather the first note that rouses the soul against the prescribed and sanctioned, and stirs it to impatience with the ordered life and prearranged happiness.

It becomes mutinous against the care which would shield grown men from the perils of their manhood.

The Song of the Sirens is the music that awakens to arduous dreams, the signal which suddenly disgusts the soul with things feasible, finished or thoroughly understood and calls one out into the vast unchartered kingdoms of the vague. For the Song of the Sirens means Romance, and once touched by a single magical note of this song a man is changed forever after. He no longer sees a pool of water but he imagines the wavering trail of moonlight on its surface, he hears the torrents rushing through vast gorges or falling with thundrous acclaim over steep declivities. While bathing in midnight lakes he hears the happy call of the white throat, the weird cry of a distant loon, the splash of the beaver's tail as he plays upon the water, the lapping of the waves against the pebbly beach or, lying back on his aromatic balsam boughs he watches the blue sky sprinkled with stars and the slow march of the constellations.

The Song of the Sirens awakes that restless yearning for the unknown which sober wisdom strives in vain to quell. But the Sirens are not ungrateful. They promise compensation. They promise the joy, the stress, the conflict and the puissance which carries the soul out to the great verges of infinity and holds her aswoon in the ecstasies of incredible life.

In the grandest epic which has come down to us from ancient times Homer relates how the wise Ulysses met, and for a time discomfitted the sirens. Forewarned by Athena, the gray-eyed Goddess, he swathed the ears of his mariners in sound proof wrappings, but he himself was eager to hear the magic song but not to yield. So he had his men bind him securely to the mast, but with open ears, and thus prepared the black ship swept nearer and nearer to the fateful isle.

The Sirens recognized the hero and lifted up their voices in song. Ulysses was moved and begged and pleaded with his men to let him land but they unhearing drove stolidly and sullenly on until a safe distance was attained.

In time, of course, Ulysses returned to his little kingdom of Ithaca, which he found in a a state of extreme disorder and lawlessness. With the strong hand of a resolute and competent administrator he put to death the C. I. O. agitators of that period and quickly restored serenity and law.

With the cessation of activity, however, the Song of the Sirens recurred. He had not escaped unscathed. The Hero was bored by the conventions, disgusted by mean things weighed and parcelled, and his awakened soul revolted at strictured rule. So, like other romantics, whether king or commoner, Ulysses turned over his kingdom to the legal heir—in this case his son—and prepared for departure to an unfettered life.

He called together the tried and true companions of his voyage, and described what he had

done and why, and in the beautiful words of Tennyson he exclaimed:

"Come on, old friends,
T'is not too late to seek a newer world.
Push off, and sitting well in order, smite
The sounding furroughs for still my purpose holds
To sail beyond the sunset, and the baths
Of all the western stars, until the end."

Or as lesser poet has said:

"Let us set forth, give me the helm again,
The Sea and Sky are mine, the adventure new.
Why stay my imperious sail, ye men,
To whom, nor hope nor dream is longer true?"

The dream and the hope of fulfillment. This is the real song of the sirens.

The dream and the hope of fulfillment has inspired the troubadours, the knights errant, the crusaders and all progressive spirits. The dream and the hope of fulfillment crowded all the laboratories of the world with enthusiastic young men after the discovery of the germ theory of disease, and made medicine what it has become in a single half century.

The dream and the hope of fulfillment inspired our trustees and Mr. Gilmore with the energy, persistence and patience to strive for a new hospital, and Mr. Jones to its accomplishment.

The dream and the hope of fulfillment stirred the sleeping artistry of the men in the Hobby Show to produce those astonishing perfections which should be a source of pride to the profession.

The dream and the hope of fulfillment forms the base of every man's aspirations, and so each of us has his dream and his hope, and as we push ever forward we may in time come upon those Fortunate Isles of which Ulysses speaks, and behold there the Golden Castles of the City of Romance glistening in the light of noon or perchance see only the reflections from its spires, pinnacles and minarets—shimmering reflections of the last rays of the descending sun in that mysterious realm beyond the baths of all the western stars—but nevertheless and forever we must dream and hope.

A REPRODUCTION DISPLAY OF PHARMACY IN CHICAGO IN 1850

After the last Apothecary jar was placed on the shelf, the final bit of rock candy adjusted in the glass jar and saddle bags hung on the wall, the sign "Keep Out" and the curtains covering the entrance and exit were removed and the public trooped in—to see the three most unique stores in this city, which are now on exhibit in the Chicago Historical Society. They gasped at what greeted their eyes and are still gasping. Nowhere else in Chicago or the middle west is it possible to see an actual 1850-55 Apothecary Shop, 1845-50 General Store and Postoffice and 1840-45 Boot Shop.

Compare the wooden mortar and pestle over the door of this 87 year old clapboard apothecary shop with the neon signs signalling present day drug stores. Then, there were no crepe paper rosettes to color the window display. Large decorative apothecary jars filled with blue and red liquids supplied the color.

Around the base of the apothecary jar in the Chicago Historical Society exhibit, and in the best taste of the typical apothecary of 1850, are shown velvet lined cases on which rest gleaming sharp steel amputation tools, complete with nickel plated saw. Tourniquets, and bone setters complete the window display. Under the oil burning lamp, in the shop, a genteel lady in mauve taffeta with a tiny straw bonnet discusses scent powders and perfumes with the pharmacist.

Even though the 1850 soda fountain, with five available flavors in the shop, bears little resemblance to the current version of shining chromium and white tile, it proves that the idea of a combination soda fountain and drug store was not original with today's druggists.

Various colored glass strips form this urn-like hollow "soda fountain." The kerosene light inside the cylinder shines through these panels, coloring the water which bubbled constantly from six spigots surrounding the urn. Its purpose was twofold; to advertise flavored soda water and washglasses. Lemon, ginger, strawberry, pineapple, and sarsaparilla were the favorite flavors in those days.

Much of the material in the drug store, including the gold labelled drug bottles of assorted sizes filling the glass cases and lining the shelves was procured from the Hertzman Drug Store in Chicago, the Society of Medical History, the

late Dr. Otto L. Schmidt and Mrs. Charles B. Pike.

From Chicago's earliest days, the health of its citizens has been a prime consideration. Those engaged in the erection of Fort Dearborn in 1804 were not only handicapped by lack of necessary tools, by want of food and sufficient clothing but also by a sickness called "bilious fever." The limited diet, summer visitations of ague and fever, long, comfortless winters on the shore of the lake when all communication with the outside world was broken, brought nostalgia and discontent. Lack of medical care added to the already overbearing hardships. The post doctor had but little equipment and only a small supply of medicines with which to care for those whom the hardships of life had laid low. One year after the founding of Fort Dearborn the sick list assumed formidable proportions, and conditions remained unchanged during the period of fort occupation.

The prescription books of the garrison bear testimony to the inroads of disease, particularly ague and fever, doubtless caused by the climate and the sad toll of death told the story of the lack of medical care.

Later, in 1832, the alarm caused by the news of Black Hawk's return gripped the settlers. The appeal for assistance was answered by two companies of regulars under Major Whistler, a body of Michigan militia and hurriedly assembled troops under General Scott. With them came Asiatic cholera, and the fort was converted into a hospital. The inrush of European and Eastern seaboard immigrants complicated the health problem in no small degree. Many came not only poor in pocket but infected with disease.

As late as 1851, the public health officer of Chicago was dispatched to LaSalle to inspect all immigrants coming up the Illinois River. Under the charter of 1837 the city council could indicate the location or restrain all business harmful to public health and comfort, could abate nuisances and direct the returning of bills of mortality. It was also empowered to name three commissioners as a board of health, as well as to appoint annually a health officer whose duties should be concerned with the prevention of the spread of disease. Quarantine regulations were designed to remove from the harbor infected shipping and to take out of the city non-resident persons with communicable diseases and all things infected by or tainted with pestilential disease. As a result of these advances the board of health dealt with situations so successfully as to prevent the development of too widespread epidemics.

All Chicago newspapers in 1850 carried much drug advertising on the front page.

Following is a typical apothecary advertisement in the four sheet Chicago Daily Journal of 1850:

S. Sawyer
124 Lake Street
Chicago, Ill.

Wholesale and Retail dealer in Drugs and Medicines. Paints, Oils, dye-stuffs, glass-ware, patent medicines, chemicals, perfumery, spices, etc. etc.

According to the masthead of the newspaper which listed the lineage rates, 12 lines or less for one year in this weekly paper cost $20.00. And in italics, this warning appears—"Transient visitors and advertisers, not subscribers to pay before insertion." More drug advertising was done during August and March than any other months in the early years of the cities' growth. Like many of his fellow Americans, early Chicagoans were vitally interested in the upkeep of his body and seized upon the opportunity to obtain such guarantee of longevity as Gregory's Bilious Pills which "if timely administered" would be found "very efficacious" in cases of at least thirty-four different maladies. Cough Drops and cough syrups, toothache drops, balsam of hoarhound, liniment, vegetable remedies, and many other devices to keep man's machine in good running-order could be procured. Nor need he be forgetful of his external appearance, for he had available such beauty aids as hair oil, hair dye, perfumery, dentifrice, and cold cream. Ice Cream made its appearance with the establishment of the first large drug store in the city in 1835.

Judging from the advertisements in early papers, nostrum manufacturers of early days possessed the same acumen and resorted to the same exaggerated claims for originality of discovery and virtues for his concoctions as is practiced by his descendants.

The January 2nd issue of the Chicago Daily Journal carries a column devoted to The Graefenberg Medicine in which it says that the medicine issued by the Graefenberg Company consists of a series of medicines pre-eminently adapted

to the disease for which they are respectfully recommended. However, immediately following this statement is a paragraph devoted to Sarsaparilla in which this drug is mentioned as a cure-all for no less than ten ailments.

Sarsaparilla's interesting history began shortly after it was introduced by the Spaniards to European Medicine after the discovery of America. At that time it acquired considerable reputation as a blood purifier but it soon fell into disrepute and was many times re-discovered and as often denounced.

During the thirties it was customary to place patent medicines with firms only on commission. The more saleable properties, like Brandrith's pills, Morrison's pills, Holloway's ointment and pills, were only sold at bookstores. This changed in the forties. All drug stores in Chicago were grouped together on Lake street within a block of each other and they generally became the agents.

Sloans' liniment, that great American "institution," carried one complete column of advertising regularly in the Journal. In this column, the linient was ballyhooed along with books on horses and cattle, requests for salesmen, testimonials as to the curative powers of Sloans' drugs and as proof of the pudding, the advertising declared that "a wonderful stir has been made about this medicine." Quacks were much denounced, especially the competitors who sold Sarsaparilla.

At present only forty-one drug prescription pharmacies are open in Chicago. And exclusive of the 1,826 independent drug stores, there are 37 drug chains operating in Chicago.

FARM POPULATION REDUCED SLIGHTLY DURING 1936

A farm population of 31,729,000 persons as of January 1, 1937, was estimated today by the Bureau of Agricultural Economics, compared with 31,809,000 on January 1, 1936. The net loss of 80,000 persons represents the first decrease in farm population since 1929.

The Bureau reported that 1,166,000 persons left farms last year, and that 719,000 moved to farms from villages, towns and cities. But the net migration off the farms was almost entirely offset by an excess of farm births over deaths: births were estimated at 716,000, deaths at 349,000.

The number of births on farms last year was the smallest, and the number of deaths the largest in 15 years of Bureau records. The number of persons moving to farms was the second smallest during this period, and the number of persons moving off farms also was the second smallest.

The Bureau said that "with a decrease in farm population there is a reversal of the trend observed during the years 1930-35, when farm population increased every year. Since 1910 there have been several periods when the farm population reported decreases. From 1910 to 1918 there was a decrease which became pronounced during the World War. Following the war, farm population increased until 1921.

"Farm population decreased between 1922 and 1929, and at the beginning of 1930 there were fewer people on farms than there had been at any time since the World War. From 1930 to 1936 farm population increased somewhat. During the past four years the number of people on farms has remained nearly constant, changing by less than 100,000 each year."

ONE PERCENT UNDER 1910

The figures reveal that the farm population now is little less than the peak figures of 32,076,960 persons reported for 1910, but much larger than the low of 30,-169,000 persons reported for 1930. The Bureau said that "the result of all the changes of the last 27 years is that the farm population today is about 1 percent less than in 1910."

Although the number of persons in the United States has increased by nearly 40 percent since 1910, the number of persons living on farms today is slightly less than it was in that year. Since 1920, however, more people have moved from farms than to farms during every year except 1932.

The Bureau pointed out that the increase in farm population between 1930 and 1935 was due more to the fact that fewer people were moving to towns and cities than to any great "back-to-the-land movement." But with the resumption of urban employment opportunities in recent years, there has been an increase in net migration from farms.

KIND WORDS FOR THE COUNTRY DOCTOR

The Chicago Daily News has the following to offer in praise of the Country Doctor:

Snow coils over roof and wall. Rain murmurs deeply. Summer heat creeps like a slow tide into the house. At any season or hour hands knock in desperate urgency on the door, or phone clamors to rouse the country doctor. He cannot choose but heed. It may be Maw Tecchy with the flim-flams. Grandpaw Gooch is gloating over a new 'tiz. But even more it may be the shadowing dark angel, or the answer to death in the advent of a child. Without fanfare or high reward the country doctor ministers to all ills that rural flesh is heir to, in the dark before dawn or drowsy noontide.

Only the other day at an obscure southern Illinois hamlet one of these unsung heroes pressed his own lips upon the lips of a newborn baby and breathed life into the tiny lungs. For that he was prepared, just as he is wise in mitigating Josh Pibble's imaginary lesions and Aunt Hepsy's old teeth. All the time he is no saint or reformer. He does what he can.

He knows every village or farm tongue which is stuck

out for his diagnosis of every ailment or simple tongue-wagging. He cures with his humorous mind more than with the latest medical speculations and experiments. As much as any man, he is the backbone of that American individualism, at once kindly and unflinching, which heartens and comprehends the simple folk who are the real roots of every country worth the name.

HEALTH INSURANCE OPPOSITION ALMOST UNANIMOUS

The Allegheny County Medical Society sent a questionnaire to its members, asking them to vote on approval or disapproval of compulsory health insurance. The *Pittsburgh Medical Bulletin* (26:345 [April 17] 1937) gives the result. Out of 642 members who answered the questionnaire, 633, or 98.6 percent, disapproved compulsory health insurance, and nine, or 1.4 percent, approved.

Cards were then checked with the American Medical Association Directory as to age, specialty and years since graduation. The results answered the repeated statement that the younger men are in favor of compulsory insurance, since, with the dividing line placed at 50 years of age, there were only two under 50 who favored, compared with 334 who opposed compulsory health insurance; while, of those over 50 years of age, there were seven who favored and 299 who opposed. Of general practitioners, 0.9 percent were for compulsory health insurance and 99.1 against; of specialists, 98.8 per cent were opposed and 1.2 percent in favor.

Like every investigation of the opinion of the physicians of the United States this one shows that they are overwhelmingly in agreement with the position taken by the House of Delegates in opposition to compulsory health insurance.

TOO MUCH SUNSHINE, BOTTLED OR FREE, DECLARED SERIOUS

According to California and Western Medicine

The absorption of California's widely advertised sunshine, either externally or internally, should be in moderation or serious results may follow. External consumption is represented by the sun bath and various other forms of irradiation in which either Old Sol himself figures, or his place is taken by a lamp or other contrivance. Internal consumption is represented by the vitamin D concentrates and preparations sold by drug stores or added to foods. This is the famous "sunshine vitamin."

The University of California Medical School and the San Francisco Department of Public Health have joined in a warning against too much sunshine, particularly in the concentrated form, because of the possibility of delayed harmful effects. The University's warning reads:

"Naturally this is not an argument for interfering with the treatment or prevention of rickets by vitamin D. But it is a plea to use some discretion in the amounts of vitamin D prescribed. Commercial enterprise is endeavoring to capitalize to the fullest in the current popular vogue for vitamin D. In addition to a sun-tan craze there are ballyhooed everywhere irradiated foodstuffs of all varieties, metabolized milks and even 'sunshine soaps.' But when on top of an unknown but probably quite adequate intake of vitamin D, especially in Sunny California, children are dosed with large amounts of vitamin D preparations by overanxious mothers, it is time for physicians to use care in prescribing the drug."

The warning of the San Francisco health department states:

"The director of public health wishes to record the fact that he disapproves of the present tendency of manufacturers to add measured quantities of vitamins to foods for commercial purposes. There is still considerable question, particularly in the instance of vitamin D, of what constitutes the proper dosage of vitamin concentrate in the various age groups. Any attempt to increase the sale of a food product, especially milk, by the addition of a substance whose value to the public health is still a controversial problem is indeed ill-advised. Even if it is granted that the actual danger in the consumption of vitamin D milk is relatively minimal, there is as yet no definite and accepted information on the limits or margins of clinical safety."

CHARLATANISM

Charlatanism is as old as mankind. If one were to go back to the time of the Greeks he would find descriptions of cults that are not very unlike some of those in vogue today. One of the characteristics of quackery, however, is that an individual fad does not last indefinitely. It comes into prominence, soon reaches a peak and then disappears. This also applies to various healing cults, no matter how honestly they may have been conceived.

In this connection it is interesting to read the following quotation from Palmer, the leader of chiropractic, which was printed in the September issue of Colorado Medicine. "Chiropractic is doomed. You have drifted so far from the basic principles of chiropratic that you have lost your identity and brought the basic science bill on your heads. Twenty-eight chiropractic schools have been closed . . . you cannot defeat the ends of science. The basic science bills are the buckshot which we deserve for trespassing. When chiropractors preach and practice and try to become physicians, then it is justifiable for the medical men to educate the chiropractor."—Neighborhood Health, New York City Department of Health.

SMOOTHING THE WAY

A Houston road-sign painter suggests the following sign for railroad crossings:

"Come ahead. You're unimportant."

"Try our engines. They satisfy."

"Don't stop. Nobody will miss you."

"Take a chance. You can get hit by a train only once."

—Houston Post.

MEDICAL ECONOMICS

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Address all letters and communications to the Chairman.

The number of articles in the lay press on the transactions of the House of Delegates of the American Medical Association at the annual meeting at Atlantic City is definite proof of the interest of the public in medical problems. While all of the comments are not in agreement with the decisions arrived at by the House of Delegates, it is encouraging to note that the mere mention of State Medicine arouses discussion and in the most instances criticism of any such plan. Whether this is the result of the educational program of organized medicine the past few years or a native dislike of governmental dictation is of relatively little importance compared with the opportunity it affords the medical profession to present its side of the problem. With the large amount of data available to prove that the method of conducting the practice of medicine is more efficient in the United States than in any country of Europe where the so-called State Medicine is in use, the medical profession is derelict in seizing a wonderful opportunity, if it fails to continue the discussion of medical problems.

Here in Illinois, a new problem has arisen. Namely, the conducting of Pre-Marital Examination in accordance with the newly enacted law, which became effective on July 1, 1937. Here is an experiment in Eugenics, the success of which depends entirely on the cooperation of the medical profession. In addition to being required by law, it is universally agreed that the results must be an improvement in the health of the next generation of children. All, we, as medical men must do, is examine carefully every applicant for a marriage license who presents himself to our office and be sure that he (or she) does not have a venereal disease. This will take a little time and expense on the part of the examiner. For his time and expense, he will be paid. And it is to be hoped that he will be careful to see that the fee charged for the examination not be so high that criticism and complaint on the part of the applicants will result. Sloppy, incomplete examination will be readily detected by the applicants and will result in the entire procedure falling into disrepute. Any man who is unwilling to make a complete examination at a reasonable fee, should refuse to make the examination. The medical profession has insisted that it is willing to cooperate with federal and state authorities to maintain and improve the health of the people of the United States. Here is a definite opportunity to prove that we are sincere in that statement. Any man who fails to make a complete, careful examination is unfair to the entire medical profession as well as himself and in addition is violating the laws of his country. The Legislature of the State of Illinois removed that portion of the bill which stated that the charge for his service should be two dollars at the suggestion of the medical profession. This should be appreciated and the appreciation evidenced by our cooperation in enforcing the law. Failure of cooperation by the medical profession will result in severe criticism.

The work of the Educational Committee for the current year has been expanded as a result of an increase in the expected revenue for the year. The program of lay education through the newspapers of the state has been increased, so that now every paper can receive articles on medical subjects of seasonal and current interest every week. If the members of the Illinois State Medical Society will contact their local editor and tell him of this service and try to get him to use the articles, they can increase the scope of this program many fold during the coming year. In addition it is to be hoped that articles will be prepared for use by the medical profession in addressing lay audiences throughout the state as to the superiority of the method of the United States in comparison with that of

Europe. The majority of men are too busy to prepare exhaustive papers on these subjects, but can and will present them to their local clubs, when the papers are made available to them. Further details and information as to the exact manner in which this will be done will be presented later.

The final report of the Legislative Committee of the Illinois State Medical Society is in the making. We hope that it will be completed and ready to be presented in this issue of THE JOURNAL. Every man in the state should read it carefully and know one of the things that the Illinois State Medical Society does for its members. The Chairman, Dr. John Neal, is doing a fine piece of work both for the medical profession and the people of Illinois. He watches for every attempt on the part of the cultists to obtain privileges inimical to the health of the people of Illinois. This requires great care for often these attempts are carefully tucked away in bills where they would be least expected. After discovering these attempts, he must convince the members of the legislature that they are not for the good of the people of Illinois. That he has been successful in this work is readily seen by an examination of the reports he has made the past few years. The final Legislative Bulletin of the Legislative Committee as furnished to the officers of the Component County Societies has just arrived. It is quite complete and exhaustive, but is well worth reading. It will follow this article in this column. After reading the same you will appreciate the work of this Committee made possible through funds from your annual dues to the Illinois State Medical Society.

E. S. Hamilton, M. D.,
Chairman of Committee on Medical Economics.

FINAL LEGISLATIVE BULLETIN

Was it deliberative, astute political maneuvering or merely the vagaries of discordant human nature at work? Whatever the cause, no General Assembly in Illinois ever wound up a regular session amid greater confusion than the one recently adjourned. After months of desultory activity which accomplished little except to fan the flames of factional bitterness between the two chambers, a congested calendar during the last three weeks of the session gave to the clever lobbyist of special interests a heyday that he dreams of, but seldom encounters in the stern reality of life. Anything might have happened and would have happened in the absence of unusual alertness on the part of forces devoted to the public interest. As many as 17 bills were voted simultaneously for passage on one occasion in the Senate. Proposals that had been defeated earlier were resurrected by methods familiar to the astute and inserted into bills that appeared headed for passage. In this way attempts were made to achieve in the confusion of a congested calendar and a fatigued legislative body what had not been possible when considered in open, deliberative session.

An example of this was H. B. 971, which as introduced and as passed by the House, merely amended and strengthened the legal phraseology of the Medical Practice Act as suggested by the Attorney General's department. It went to the Senate on June 22, advanced to second reading without reference to a committee, then went to third reading but was recalled on June 24 to second reading, reconsidered and advanced again to third reading. Then on Monday at the midnight hour, June 28, almost the eve of adjournment *sine die*, came the *coup de main*. It is best described in the language of the Senate Journal of June 28th which reads:

Recall

"On motion of Mr. Fribley, House Bill No. 971, a bill for 'An Act to amend section 16 of' 'An Act to revise the law in relation to the practice of the treatment of human ailments for the better protection of the public health and to prescribe penalties for the violation thereof," approved June 30, 1923, as amended, to add sections, etc. Was recalled from the order of third reading, to the order of second reading, for amendment. Mr. Fribley offered the following amendment to the bill, which was adopted.

Amendment No. 1

"Amend printed House Bill No. 971, in Senate, on page 2, section 2a, line 41, by striking the word 'Five' and inserting in lieu thereof the following:

'For the profession of osteopathy (in all its branches) five (5) persons, all of whom shall be graduates of reputable colleges of osteopathy and licensed in this State to practice osteopathy. For all other professions subject to the provisions of this Act, five' etc.

"And the question being, 'Shall the bill be ordered to a third reading as amended?' it was decided in the affirmative."

Energetic efforts on the part of the Society led to the defeat of this measure by an uncomfortably narrow margin. The vote, which had more "yeas" than "nays," was lost for lack of a constitutional majority. The Senate Journal of June 29th records the action on this proposition as follows:

"On motion of Mr. Loughran, House Bill No. 971, a bill for 'An Act to amend section 16 of An Act to revise the law in relation to the practice of the treatment of human ailments for the better protection of the public health and to prescribe penalties for the violation thereof,' approved June 30, 1923, as amended, to add sections 2-a, etc.

"Having been printed as received from the House of Representatives, together with the Senate amendments thereto adopted by the Senate, was taken up and read at large a third time.

"And the question being, 'Shall this bill pass, together with the Senate amendments thereto?' it was decided in the negative by the following vote: Yeas, 19; nays, 6. (26 votes necessary to pass.)

"The following voted in the affirmative: Messrs.

Barr	Fribley	Lohmann	Monroe
Baumrucker	Harper	Loughran	Thomas
Beckman	Karraker	Maypole	Ward
Broderick	Kielminski	McDermott	Woodward
Burgess	Lee	Meyers	Yeas ..19

"The following voted in the negative: Messrs.

Baker	Graham	Smith	Nays....6
Crisenberry	Mendel	Tuttle	

"Whereupon, the President of the Senate declared that House Bill No. 971, in Senate, was lost."

NOTE: Those not voting were also opposed to the osteopathic amendment and should receive the thanks *of the Society.*

The amendment involved in this tricky maneuvering would have enacted into law the heart of the osteopathic registration bill, H. B. 194, including the right to do surgery, which was tabled in the House on June 24 after a checkered career that began with its introduction on February 16. It lay dormant in the Committee on Efficiency and Economy despite the many efforts to have it recommended favorably until May 17, when a motion to discharge the committee without action on the bill was lost. On June 3 the committee recommended that the bill *DO NOT PASS,* but in the confusion the House did not concur. When lost by tabling on June 24, the desperate maneuvering which ended as described above began.

While of outstanding importance, the proposals which would have established osteopaths and chiropractors as independently registered practitioners were by no means all of the bills of fundamental significance from a medical viewpoint that were introduced in the General Assembly. About 250 of the 1,614 measures offered for passage related to health, hygiene, sanitation and safety and more than 100 embraced medical aspects. Although most of these were either inimical to or of no particular public advantage, a few were constructive and desirable.

Most far reaching of these was the Saltiel Act, now a law, which requires premarital health examinations. As originally introduced, this bill would not only have introduced fee fixing, specifying a maximum of $2 for the medical examination, but made tests for venereal diseases optional, which would have defeated its purpose. As amended and passed it is fairly satisfactory except that no State Department is charged with enforcement.

Another constructive measure, which unfortunately lost in the eleventh hour House jam after having passed the Senate, was S. B. 339 that would have given physicians and hospitals for services rendered a lien on damage awards to persons accidentally injured.

A mania for licensing crafts of various kinds brought before the General Assembly over a score of bills on this subject. These related to skilled labor and technicians from plumbers to clockmakers and from barbers to x-ray operators. The latter was vigorously opposed because it would have made the technicians of one phase of medical practice, x-ray, equal before the law to the profession itself.

If S. B. 302 had been enacted, every physician and other professional men in the city of Chicago would be subject to an annual license tax variously rumored from ten to one hundred dollars.

Scores of bills concerning sanitation, hospitals and sanatoria, foods and drugs, safety, relief, workmen"s compensation, etc., involved medical aspects which required the closest study and often quick action on the part of your Legislative Committee in the interests of the public and high standards of medical practice.

Anti-Vivisection. H. B. 615 represented perhaps the most astute and clever legislative maneuver ever attempted in favor of anti-vivisection. Neither vivisection nor animal experimentation was mentioned in the bill. Both were subtly prohibited, however, by implication. The bill merely specified that municipalities shall provide for impounding dogs and cats and prescribed the exact ways in which unclaimed animals shall be disposed of. They could be sold to "proper persons" or "humanely destroyed."

(Members deesiring to know the action taken on individuals bills can secure a list from the chairman.)

Miscellany. A score of bills relating to such subjects as absentee voting, adoption of children, crime and taxation would have a bearing upon the practice of medicine and on the medical profession in one way or another.

Summary. A casual scanning of this report will impress the reader with the multitude of divergent interests which bring pressure to bear upon the General Assembly. It will reveal the restless and unsettled state of affairs with respect to matters of social significance and general public interest. It discloses a groping of political leaders after some definite policy or program that no one has succeeded in bringing to light. This situation makes doubly important a constant alertness on the part of your Legislative Committee. It multiplies and makes more difficult its work. Nothing can be taken for granted. Every bill must be scanned and about one-fourth of all the proposals introduced must be studied and analyzed with meticulous care. In no other way can ill-advised, tricky and unsound legislation be opposed intelligently. No law which would lower the standards of medical practice, interfere seriously with research work, regiment the medical profession or operate to public disadvantage from the standpoint of good medical care has been enacted by the General Assembly. This was made effective largely through the splendid cooperation and assistance of the officers of the State and local societies and of physicians in the districts of several members of the General Assembly whose attitudes were vital. This office has copies of the above bills available without charge upon request. A number of proposed measures of importance to the medical profession were not introduced when it became known that the Illinois Medical Society would oppose them. Notably was the sug-

gestion that an annual registration fee be required of physicians and dentists.

Respectfully submitted,
Mather Pfeiffenberger, M. D.
M. J. Hubeny, M. D.
J. R. Neal, M. D., *Chairman*
Legislative Committee.

July 12, 1937.

Correspondence

NEW LAW—PHYSICIAL EXAMINATION

DEPARTMENT OF PUBLIC HEALTH
SPRINGFIELD

June 30, 1937.

To the Physicians of Illinois:

A newly enacted law, effective July 1, 1937, requires the physical examination for venereal diseases of all persons about to marry in Illinois. A copy of this law, which appears to be in complete accord with public sentiment, is enclosed herewith for your information and guidance.

Please observe that a blood test for syphilis and a microscopic test for gonorrhea are required of each party to a marriage contract and that these tests must be made free upon request of physicians by the State Department of Public Health or by municipal health departments.

The limited resources of the State Department of Public Health make it impossible to do in the State Diagnostic Laboratories all of the tests that will be necessary. Physicians in municipalities of over 30,000 are requested, therefore, to send specimens to local public laboratories. Where no public laboratory exists, city officials should make arrangements for handling these tests in an approved private laboratory.

Kindly observe also that physicians must provide applicants with a signed certificate to which must be attached copies of the laboratory reports of the tests. In submitting specimens to the laboratory for compliance with this law, it will be important, therefore, to give the *name* of the applicant rather than key number. Request for duplicate copies of reports is necessary if a copy is desired for your files.

The success of this venture aimed at the control of malial syphilis and gonorrhea, especially congenital infections, rests primarily on the medical profession. Some 150,000 young people will be brought annually to physicians. Weeding out the luetic will help greatly in preventing the birth of infected babies, of which there are now about 1,000 annually.

State regulations require the reporting and treatment of each patient detected. Patients are required to remain under treatment until dismissed by physicians. All necessary drugs for the adequate treatment of luetics are available free from the State Department of Public Health which will provide also assistance with respect to delinquent patients and the tracing of sources of infection. From the Department you may obtain mailing containers for use in submitting specimens for laboratory examination. In Chicago and a few other cities, these facilities are available and should be obtained from the city health departments.

Let me urge you to take full advantage of the law in giving the applicants a thorough physical examination, seeking no less carefully for symptoms of tuberculosis and other serious defects than for venereal infections. The situation gives the medical profession an extraordinary opportunity in preventive medicine and in cultivating public confidence in the profession.

I hope that you will feel the utmost freedom in calling upon this office for any assistance that it may be able to render in connection not only with the functioning of the new law but with any public health problem.

Very truly yours,
Frank J. Jirka, M. D.,
State Health Director.

PRE-MARITAL EXAMINATION

The New Illinois Law and Its Implications

Frank J. Jirka, M. D., State Health Director

Public interest has been aroused in the venereal disease situation and in the possibilities of controlling and preventing both syphilis and gonorrhea. In disputable evidence that both diseases are widespread, that many people, especially women, are innocently infected through marital relations, that about one in each one hundred babies born is congenitally infected with syphilis, that large numbers are exposed at birth to gonnorrheal infection of the eyes which may cause blindness and that syphilis is responsible for a considerable proportion of insanity as well as numerous other ills has led to an insistent public demand for a comprehensive, sound program of control, with respect to syphilis particularly, the public has been told truthfully that both cure and prevention are possible at reasonable expense through the intelligent application of available knowledge.

The most important and far reaching public expression on this subject to date in Illinois was the enactment of a law, effective July 1, 1937, which requires an examination for venereal diseases of persons about to

marry. The principal purpose of this law is to prevent the innocent infection of marital partners and to prevent the birth of congenitally infected babies. It is estimated that in recent years about 1,000 babies congenitally infected with syphilis were born annually in Illinois.

The law requires that both parties to a marriage contract be examined by a regularly licensed physician within fifteen days prior to the issuance of a license to marry. A microscopic test for gonnorhea and a blood test for syphilis are required of each as a part of the examination. A certificate (to which must be attached copies of the laboratory reports) from the examining physician of each of the parties concerned must be presented to the county clerk before he can legally issue a license to marry.

To be of value the blood and microscopic tests must be made in reliable laboratories equipped and staffed to do that kind of work. Inaccurate laboratory examination which yields false results, either positive or negative, will not only defeat the purpose of the law but may produce disaster. The mental anguish likely to be created by a falsely positive report may virtually ruin the life of the person concerned. A falsely negative report may lead to the infection of a marital partner and the birth of infected babies.

The law requires the State Department of Public Health and city departments of health to make the required tests free of cost upon request of physicians. Tests made in the public laboratories may be accepted as reliable.

Only those private laboratories approved by the State Department of Public Health should be patronized in connection with these tests.

The treatment of infected persons discovered is of great importance in the control of venereal diseases. Probably not more than one in each one hundred males and perhaps not more than one in each three or four hundred females examined as a prerequisite to marriage will be found infected with syphilis. Appropriate and adequate treatment of those that are found, however, cannot be over emphasized. The State Department of Public Health furnishes free the necessary drugs for the treatment of syphilitic patients regardless of their financial ability. Facilities may be provided for the free treatment of the poor.

All discovered cases should be reported promptly. This is required by State rules and is essential to controlling venereal diseases.

The law requiring the physical examination of persons about to marry is reproduced below. While it aims primarily at the control of venereal diseases, it offers a splendid opportunity to go much farther. The physician should take advantage of the opportunity and the applicant should insist upon his doing so, to search for symptoms of other serious diseases, particularly tuberculosis. He should be prepared likewise to give sound advice concerning the multitude of problems that arise through marital relations.

THE LAW

An Act to add section 6a to "An Act to revise the law in relation to marriages," approved February 27, 1874, as amended.

Be it enacted by the People of the State of Illinois, represented in the General Assembly:

Section 1. Section 6a is added to "An Act to revise the law in relation to marriages" approved February 27, 1874, as amended, the added section to read as follows:

Section 6a. All persons desiring to marry shall within fifteen (15) days prior to the issuance of a license to marry, be examined by any duly licensed physician as to the existence or non-existence in such person of any venereal disease, and it shall be unlawful for the county clerk of any county to issue a license to marry to any person who fails to present for filing with such county clerk a certificate setting forth that such person is free from venereal diseases as nearly as can be determined by a thorough physical examination, and attached thereto laboratory reports of microscopical examination for the gonococcus for gonorrhea and the blood Wassermann test or Kahn test for syphilis. Such laboratory examination shall upon the request of any physican in the State be made free of charge by either the State Department of Public Health or the Health Department of cities, villages and incorporated towns maintaining Health Departments. The certificate required herein shall be filed with the application for license to marry and shall read as follows, to-wit:

I, ..., being a physician, legally li-
(Name of physician)
censed to practice in the State of ....., my credentials being filed in the office of ..... in the City of ..... County of ..... State of ..... do certify that I did on the ..... day of ..... 19... make a thorough examination of ..... and considered the result of a microscopical examination for gonococci and a Wassermann or Kahn test for Syphilis, which was made at my request. (Strike out the test or tests which were not made) and believe ..... to be free from all venereal diseases.

.....
(Signature of physician)

Any county clerk who shall unlawfully issue a license to marry to any person who fails to present for filing the certificate provided for in this Act or who shall refuse to issue a license to marry to any person legally capable of contracting a marriage who presents for filing the certificate provided for in this Act, or any physician who shall knowingly and wilfully make any false statement in the certificate, or any party or parties having knowledge of any matter relating or pertaining to the examination of any applicant for license to marry, who shall disclose the same, or any portion thereof, except as may be required by law, shall upon proof thereof be punished by a fine of not less than $100.00 nor more than $500.00 for each and every offense.

Any person who shall obtain any license to marry contrary to the provisions of this section shall, upon conviction thereof, be punished by a fine of not less than $100.00 or by imprisonment in the county jail for not less than three (3) months or by both such fine and imprisonment.

Any license to marry issued hereunder shall be void thirty (30) days after the date thereof.

Approved June 23, 1937, Henry Hornor, Governor.

Louis E. Lewis,
Speaker, House of Representatives.

John Stelle,
President of the Senate.

INSTRUCTIONS FROM THE STATE DEPARTMENT OF HEALTH

July 17, 1937.

To the Editor: In view of the extraordinarily heavy demands on the diagnostic laboratory facilities of the State Department of Public Health that have come about as a result of the Saltiel hygienic marriage law, it will be helpful to all concerned if physicians, when submitting specimens in compliance with the law, will be guided by suggestions as follows:

1. Do not enclose smear-specimens for microscopic examination in the same container or shipping carton with blood specimens for the Kahn or Wassermann. When enclosed together the slides are frequently broken upon arrival at the laboratory and in any event it causes delay because of an upset in laboratory routine. Smear-slides enclosed with blood specimens are apt to be misplaced in the laboratory and the identification lost.

2. Do not ask for the complement fixation test for gonorrhea on blood specimens. The law requires only a microscopic test for gonorrhea. The laboratory facilities are too limited to undertake the complement fixation test on all samples of blood submitted.

3. Insert on the form which acompanies specimens the full name of each person who wishes a report to be attached to an application for marriage license. The name used should be identical in every respect with the name to be inserted on the application for marriage license and on the physician's certificate. County clerks have been advised that the names on all of the credentials should be identical. To avoid errors the names should be typed or printed.

4. Make a separate certificate for each of the two people who propose to marry and attach the two laboratory reports to each. County clerks have reported that physicians have certified to the examination of both applicants on one certificate.

5. Ask for reports in duplicate if copies are desired for the physician's files.

6. Do not submit specimens identified by key numbers or other symbols if reports are to be used to conform with the Saltiel law.

7. Insert *"For Marriage License"* on forms when specimens are submitted for that purpose. This will be helpful in appraising the value and volume of work done in compliance with the law.

8. Request applicants to allow three or four days for obtaining the laboratory reports.

I believe that compliance on the part of the medical profession with these suggestions will greatly facilitate the laboratory services involved and I shall appreciate your giving space to this communication in an early issue of the JOURNAL.

Very cordially yours,

Frank J. Jirka, M. D.,
Director of Public Health.

PHARMACOPOEIA OF THE UNITED STATES OF AMERICA 1930-1940

Philadelphia, Pa.

To the Editor: The Pharmacopœial Convention of 1930 approved the following Resolution which had been passed, in substantially the same form, by many preceding U. S. P. Conventions:

"Supplements—It is recommended that the Commitee of Revision be authorized to prepare supplements to the Pharmacopœia, or lists of admissions or changes at any time they may deem such action desirable."

(U. S. P. XI, page lxvi)

Under this authorization the U. S. P. Committee of Revision and Board of Trustees have prepared and published the First Supplement to the U. S. P. XI.

This First Supplement has just been released and will became official on December 1, 1937. It is a booklet of about 100 pages in a substantial binding and may be obtained from the Mack Printing Company, Easton, Pa., from your wholesale druggist, or from any other distributor of the U. S. P., at $1.00 per copy, postpaid. In this supplement, all of the texts revised to June 1, 1937, are reprinted in full so that there can be no misunderstanding of the authorized changes.

This Supplement was prepared under the same careful procedure followed for the original text of the Pharmacopœia. Each proposed change was carefully investigated by the appropriate Sub-Committee and submitted for the consideration of the Revision Committee. The tentative

text was then given wide distribution to solicit criticism and suggestions. A hearing, conducted by members of the Executive Committee, was later arranged and announced, and anyone interested was invited to be present. Following the hearing the members of the Executive Committee held a conference with the officials of the Food and Drug Administration at Washington and then decided upon the text, which was then submitted in full to the members of the Committee of Revision for discussion and approval. Finally the Board of Trustees decided the date of issue for the Supplement, also the date when it is to become officially a part of the U. S. P. XI, and the price for which it is to be sold.

American pharmacy may justly be proud of the part it has played for almost a century in cooperation with medicine, in the decennial revisions of the U. S. Pharmacopœia. The issuance of the First Supplement to the Eleventh Revision inaugurates an advanced program. This makes possible the prompt revision of tests or assays whenever it is found necessary and even the recognition of added therapeutically important substances, if new conditions make such action desirable. This plan will make the Pharmacopœia more responsive to progress, more serviceable as a technical guide to the health professions, and more dependable as an authority for drugs and medicines under the Federal and State pure food and drugs acts.

The fullest support should, therefore, be accorded to this new and forward looking policy by all who are interested in the Pharmacopœia. Pharmacists and all other users of the U. S. P. should promptly supply themselves with copies of the First Supplement to the Eleventh Revision.

E. Fullerton Cook,
Chairman U. S. P. XI Committee of Revision,
43rd Street and Woodland Ave.

PROHIBITIVE OBJECTIONS TO THE USE OF PROPRIETARY MIXTURES OF MEDICINES

Marshall, Ill., July 19, 1937.

To the Editor:

Doctors must have a language, a vocabulary which is understood among themselves, or they cannot work together in the treatment of sick or injured people. The employment of a mixture of two to six medicines some of the ingredients of which are little or not at all understood and the reaction of the one drug on another less understood, the concoction is wholly unreliable for internal or external use. The physician or surgeon using such combinations cannot know what effect if any to expect and his colleagues cannot learn from his observations nor can he profit by the mistakes of others and lone experience is a costly school to learn in, in any calling.

We have standard medicines prepared in recognized standard ways and strengths (U. S. P. and N. F.) and when these are given or applied locally we all know or can look up and learn something about the effects to expect and when two or three doctors are on the same case they can talk the same language and co-operate intelligently and in reporting the case, others may benefit by the success or failure of such medicine in such a case.

Two members of my family with severe burns have the past three weeks renewed the above observations to me very forcefully. One doctor wanted to use (and has used) Butesin Uicrate Ointment "containing 1% Butesin Picrate," an unknown per cent. of tannic acid and a little other acids, etc., another doctor in a distant hospital wanted to use another equally complex ointment and I wanted to use the tannic acid solution treatment sprayed on. No one of us would know how to carry out the line of treatment suggested by the other, nor even to talk about it not having had experience with that particular mixture. I did not consult other doctors for the reason that I feared more complex mixtures would be suggested and more doubt and uncertainty created in my mind as to the proper treatment for such patients. A standard treatment can never be established for burns nor any disease while one doctor uses a shot-gun remedy and his colleagues use another double barrel shot-gun remedy.

The prohibitive objections to the use of proprietary mixtures of medicine are:

1. It is impossible for any man to know or in any way to learn the effects of a mixture; he will do well to learn well the effects of one medicine.

2. Doctors must have a mutually intelligible language (a vocabulary) to use in consultations and reporting.

L. J. Weir, M. D.

FIFTH INTERNATIONAL CONGRESS OF RADIOLOGY

Simultaneous projection of pictures and text in three languages will be an unusual feature of a gathering of leading physicians and physicists of the world in Chicago this September, according to Dr. Arthur C. Christie, Washington, D. C., president of the Fifth International Congress of Radiology. Whatever the speaker's language, translation of his paper will be thrown on the screens in English, French and German, so that practically everyone attending the Congress will be able to understand it, he said.

"Most of the European scientists are at least bilingual," explained Dr. Christie, "but many United States physicians who will attend are not sufficiently conversant with more than English to comprehend many of the papers which will be read. By translating every speech into English, French and German, we believe that nearly everyone will receive the benefit of understanding the more than 250 speakers who will read scientific papers during the five-day meeting here September 13 to 17."

It will be the first International Congress ever held in the United States, Dr. Christie added, and will mark the 42nd year since Dr. William Conrad Roentgen discovered X-rays, and the 39th year since the Curies discovered radium. The vast progress made in development of the medical and other uses of these two boons to mankind will be portrayed during the Congress, not only through the scientific papers and discussions, but in actual graphic exhibits.

The Congress will be held here at the Palmer House, Chicago, and more than 1,000 square feet of floor space will be devoted to an extensive scientific exhibit to be arranged by scores of hospitals and research laboratories throughout the world. Over 20,000 square feet will be devoted to commercial exhibits, showing the latest equipment manufactured by leaders in the field, ranging from X-ray negatives up to models of million volt therapy apparatus.

A "short-term" medical school will be conducted during the Congress, said Dr. Christie. Eminent leaders in the field of Radiology will conduct short courses during the Congress for the benefit of delegates who will attend the Congress from all parts of the world. All of the United States radiological societies, including the Radiological Society of North America, American Roentgen Ray Society, American College of Radiology and American Radium Society, will hold their joint annual conventions during the Congress and will elect officers here. At least 500 foreign delegates are expected from 30 different countries, and over 2,000 United States physicians will attend. Physicians in other branches of medicine may attend the Congress, according to Dr. B. H. Orndoff, 561 N. Clark Street, general secretary.

Included among the outstanding scientists of the world who will be present at the meeting are: Dr. Gosta Forssell of Stockholm; Dr. Antoine Beclere of Paris; Dr. Tamotsu Watanabe of Osaka, Japan; Dr. H. Tellez-Plasencia of Santander, Spain; Dr. Russell Reynolds of London; Dr. William D. Coolidge of Schenectady; Dr. C. Thurstan Holland of Liverpool; Dr. George B. Pfahler of Philadelphia; Dr. Francis Carter Wood, New York; Dr. James Ewing, New York; and Dr. William J. Mayo of Rochester, and many others.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next written examination and review of case histories of Group B applicants by the American Board of Obstetrics and Gynecology will be held in various cities in the United States and Canada on Saturday, November 6, 1937.

The next general examination for all candidates (Groups A and B) will be held in San Francisco, Cal., on June 13 and 14, 1938, immediately prior to the American Medical Association meeting.

Application blanks and booklets of information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania. Applications for these examinations must be filed in the Secretary's office not later than sixty days prior to the scheduled dates of examination.

AMERICAN CONGRESS OF PHYSICAL THERAPY

Cincinnati and its medical groups will be host to the American Congress of Physical Therapy which meets in the Ohio city, September 20 to 24.

Never before has there been such interest and enthusiasm for an annual session as is being displayed this year for the September meeting. Plans are being made for a very large attendance which will be comfortably cared for at the Netherland Plaza Hotel.

Of special interest is the scientific program with its diversified symposia, clinical conference groups, demonstration clinics and sectional meetings. Every specialty in medicine and surgery will be adequately represented. The scientific exhibits will be extensive and varied and should comprise an important part of the entire session. The technical exhibits will prove profitable in information to those who seek familiarity with the newer apparatus and equipment in physical therapy.

From every standpoint the 16th annual session offers an intensive "refresher" course in which will be embraced subjects like short wave diathermy, ultraviolet radiation, low voltage currents, exercise, massage, etc. Featured symposia include fractures, vascular diseases, poliomyelitis, fever therapy. There will be no registration fee but the meeting is open only to duly licensed physicians and properly vouched for technical assistants. Plan now to attend the Congress session in September.

THE AMERICAN BOARD OF OTOLARYNGOLOGY

An examination was held in Philadelphia, June 7th and 8th, prior to the meeting of the American Medical Association. Ninety-four candidates were examined—of this number seventy-two were certified.

An examination will be held in Chicago, October 8th and 9th, prior to the meeting of the American Academy of Ophthalmology and Otolaryngology.

Prospective applicants for certificate should secure application blanks from the Secretary, Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha, Nebraska.

H. P. Mosher, M. D.,
President.
W. P. Wherry, M. D.,
Secretary.

MISSISSIPPI VALLEY MEDICAL SOCIETY "ANNUAL AWARDS"

The Mississippi Valley Medical Society (Headquarters, Quincy, Illinois), has recently established a number of annual awards in an effort to expand the influence of the organization. These are as follows:

1. To encourage recent medical graduates to promptly become interested in post-graduate study, the Society will award each year five free memberships to recent graduates from each of the recognized medical schools of Illinois, Missouri and Iowa. These memberships will be good for two years and will be determined by the deans of the respective schools on the basis of school scholarship, it being required that the appointees be licensed to practice medicine in Illinois, Missouri or Iowa.

2. A silver and a bronze medal will be awarded each year for the most interesting scientific exhibits at the annual meeting.

3. A cash prize of $100.00 and gold medal will be awarded annually for the most interesting contribution to be submitted on a subject determined by the "Annual Awards Committee." This contribution must be of interest to the physician in general practice and the winner will be invited to present it before the Society at its annual meeting.

4. The Society also has under consideration the annual award of a gold medal to one of its members (?) for distinguished services rendered the profession. This will be determined by the Board of Directors at its next meeting (September).

The matter of annual awards will be in charge of a Secret Committee of five Society members appointed by the President.

BUREAU CRITICIZES OFFER OF ASSOCIATED HOSPITAL SERVICE OF ILLINOIS, INC.

Bureau investigation of the services being offered to members of the public by the Associated Hospital Service of Illinois, Inc., has disclosed a situation which is outlined in the following letter sent by the Bureau to that corporation under date of July 9, 1937:

The Associated Hospital Service of Illinois, Inc.,
188 West Randolph Street, Chicago, Ill.

Gentlemen:

As you know, the Chicago Better Business Bureau is maintained by the business interests of the City of Chicago for the purpose of eliminating false, deceptive and misleading advertising and business practices resulting therefrom, and answering gratis inquiries concerning business firms and propositions.

The selling campaign of the Associated Hospital Service of Illinois, Inc., is bringing to this office numerous requests for information about your organization. Many of these inquirers are interested in knowing in exactly what hospitals membership cards or subscriber's cards of the Associated Hospital Service of Illinois, Inc., will be accepted as establishing credit for hospitalization.

This office has received a copy of the letter addressed to the Associated Hospital Service of Illinois, Inc., by Rev. John W. Barrett, Director of Catholic Hospitals in the Archdiocese of Chicago, under date of May 28, 1937, advising your corporation that its identification cards or membership cards will not be recognized or accepted as establishing any credit whatsoever in any Catholic hospital in the Archdiocese of Chicago. It is our understanding that this affects sixteen hospitals in the Chicago area.

In addition to these hospitals, the Chicago Better Business Bureau has been advised by thirty-six other hospitals in this area that identification cards or membership cards of subscribers to the Associated Hospitals Service of Illinois will not be recognized as establishing credit in these institutions.

In view of this situation, it is the opinion of the Chicago Better Business Bureau that the following paragraph appearing in the literature of the Associated Hospital Service of Illinois, Inc., is misleading and deceptive and should be omitted or corrected to properly reflect the exact conditions under which subscribers to or policyholders of the corporation will be accepted for hospitalization in institutions other than those affiliated with the Associated Hospital Service of Illinois, Inc.:

"ANY HOSPITAL MAY BE SELECTED

"Subscribers are not merely entitled to hospitalization in hospitals associated with the ASSOCIATED HOSPITAL SERVICE OF ILLINOIS, INC., but may obtain such hospitalization at any hospital in the City of Chicago or any other place in the United States. . . ."

We believe that when you have considered this matter you will agree that the portion of your sales literature quoted above is inaccurate and that you should take immediate steps to correct it, toward the end of presenting your services accurately to the public.

We shall appreciate it if you will acknowledge receipt of this letter and advise us whether the suggested correction has been or will be made.

Sincerely yours,

CHICAGO BETTER BUSINESS BUREAU

By Kenneth Barnard, General Manager.

Reprinted from The Report of the Chicago Better Business Bureau—July 15th, 1937.

THE INSTITUTE OF MEDICINE OF CHICAGO

The Joseph A. Capps Prize

(Founded by Edwin R. LeCount, Benefactor)

The Institute of Medicine of Chicago offers a prize of $500 for the most meritorious investigation in medi-

cine or in the specialties of medicine. The investigation may be also in the fundamental sciences, provided the work has a definite bearing on some medical problem.

Eligibility—Competition is open to graduates of Chicago medical schools who completed their internship in 1935 or who completed one year of laboratory work in 1936.

Time Limit—Manuscripts must be submitted to the Secretary of The Institute of Medicine of Chicago, 86 East Randolph Street, Chicago, and later than December 31, 1937.

The winner of the prize will be expected to present the results of his investigation before the Institute at some meeting in 1938, the time to be designated later.

If no paper presented is deemed worthy of the prize, the award may be withheld at the discretion of the Board of Governors.

WHAT IS GOOD TO EAT?

Who originated the idea that those things you like are bad for you and those things you do not like are just what you need? Appetite surely must have been developed through the ages of evolution as a guide by which the various animals were able to choose their food. It must have served those animals well because otherwise they would have become extinct in the tremendous struggle for existence. Surely, the animals which did not know what was good for them to eat are no longer with us. Surely, the fact that man is here and that he is on the top of the heap is proof enough that his appetite and instincts having to do with food must have been reliable for the most part at least.

Now come a lot of people who would have us believe that these instincts are not at all to be trusted. They would have us eat a great many dishes which we detest simply because these dishes contain certain vitamins, minerals or proteins. They would have us refrain from foods which we desire most heartily because they say they are too fattening, are lacking in something or other, or possibly are hard to digest. We are willing to grant that times have changed and that there is need that some of the instincts to be held in check, but in the main we still insist ?

—Thurman B. Rice, M. D.

ALL IN FAVOR SAY "AYE"

Judge Rainey down in Oklahoma City told me that the following incident caused uproarious laughter in his court.

An Italian who was intelligent but knew little English had applied for American citizenship, and in trying to wrestle through the questions put to him by the clerk became a good deal excited and discouraged. At the question "Do you believe in polygamy?" he threw up his hands altogether.

"I no understan'!" he said. "I no understan' noting!"

"Well," the clerk said, "I'll put it this way: Do you believe in plural marriage?"

That was still worse. "No capisco. I no understan' noting. I no Americano!" the Italian shouted, and picked up his hat as though to walk out.

But Judge Rainey leaned forward helpfully. "Let me ask this question: Benito, what do you think of the idea of having two or three, perhaps four wives?"

Benito's face relaxed in a comprehending smile. "I tink pretty good, Judge. What you tink?"

—Max Eastman in The Yale Review.

COMMON ERRORS

You sometimes say "For you and I"
Of which you should be very shy.
'Tis right to say "For you and me."
Your platform speech keep error-free.
Again you say "Let you and I"
When you should say "Let you and me."
"Who did you see?" too is not right.
"Whom did you see?" is perfect quite.
"John and Joses makes a pair,"
"Make" is the word you should use there.
In your prayers and petitions you use the word "might"
When "may" is the word which would always be right.
These are but samples of errors not told
Which a friend could name if he dared be so bold.
That you know better we all are quite sure—
Then why not speak in language more pure,
And cease to discredit your good education
In a way that quite baffles all explanation,
And thus put a stop to the adverse reflections
Of boys, girls and others who voice these objections?

—Exchange.

OUR FRIENDS WHO STAY AT HOME

"The first, and in some respects, the most important function is—to lay a foundation for that unity and friendship which is essential to the dignity and usefulness of the profession . . . The man who knows it all and gets nothing from the Society, reminds one of the little dried up miniature of humanity, the prematurely senile infant, whose tabetic marasmus has added old age to infancy . . . Why should he go to the Society? . . . It is a waste of time, he says, and he feels better at home, and perhaps that is the best place for a man who has reached the stage of intellectual stagnation. . . ."—William Osler.

IT LOOKED SERIOUS

Returning from her honeymoon, college graduate Marian Wardlaw brought her husband for a skin eruption. "This," I informed her, "is called contact dermatitis." "Contact," she repeated, and waited for me to continue. "It's an allergic condition," I tried to clarify myself. "Allergy is an abnormal response to a normal stimulus." She bit her lip nervously. "So," she meditated. "Does that mean," she stammered, "that we may have to part?"—Roche Review.

Original Articles

ABDOMINAL VISCERAL PAIN

A Physiological and Clinical Consideration

VIRGIL E. SIMPSON, M. D.
LOUISVILLE, KY.

The Universality of Pain. The fact that in all languages we find a word which means pain is an evidence of the universality of this experience. Further, we find that the word is practically the same in all languages which have a common origin. Most modern languages probably derive their word pain from the Latin pœna, which means punishment, and this in turn, no doubt, originated in the Greek word which also meant a punishment or a penalty.

When the various organs of the body are functioning in a harmonious action, there is a sense of wellbeing; that is health. When there is a discordant action of one or more of these organs it is announced by some disagreeable sensation; that is disease. This disagreeable sensation is usually the first sign of a dysfunction and it may vary from pain of a severe type to the very slight impairment of the sense of wellbeing. The pain may vary in character as well as in degree. This pain sense implies an involvement of the nervous system and this concerns the possession of consciousness which is necessary for a perception of subjective sensation.

Pain is the keystone in a diagnostic arch and usually figures prominently in disturbances that are attributable to organic disease. It is merely one of a great number of disturbances that are simply functional. The nervous background is of tremendous importance in evaluating pain. The highly nervous, highly sensitive individual will complain of pain serious enough to suggest perforation, whereas a more stolid patient, who actually has a lesion, may never have complained of pain.

In about 90% of all diseases pain is a prominent symptom some time during their course. The three properties of a pain sensation may be described as quality, intensity and duration. Pain may be defined as a distinctly mental interpretation. It is hardly a sensation, but rather the result of the perception and interpretation of the sensation by the mind. According to Marshall, pleasures and pains are but differential qualities of all mental states. Behan objects to this and believes that they are but interpretations of sensations which are perceived as arising in the periphery.

Definition of Pain. It is exceedingly difficult to define pain, for stimuli that are painful to one individual may be merely unpleasant to another and the degree of pain may vary in the same individual under different physical and mental states. It cannot be defined in terms of intensity of stimulus, because what is painful to the cornea of the eye or a tooth pulp would be interpreted as only a light touch when applied to the back. What is painful to the skin may not be felt at all when affecting a visceral organ.

Sherrington defines pain as an imperative protective reflex. Meade defines pain as an indication of interference with the power of nutrition of the organism. Gilman thinks of pain as having its source in the violation of nervous habitude. Meynhert says that any obstacle to the effective working of the psychic function is a cause of pain. Mezex says that pain is attention with difficulty. Bianchi defines it as an interference or obstruction to the play of internal emotion or exteriorization in response to the needs of life. Kulpe says that the characteristic feature of pain is the feeling of the disagreeable. Meyers calls pain a beneficient reaction through the nervous system of altered structure or disordered function against destructive forces. Dunglison could be no more definite in defining pain than to say that it was a disagreeable sensation which scarcely admits of definition. Quain was no more definite when he said that pain is the representation in consciousness of a change produced in a nerve center by special mode of excitation. Sudduth speaks of pain as a mental state, an element of consciousness, viewed with a perception of an injury to the body or to the feelings. Schopenhauer, the old pessimist, says that pains are positive and pleasures are negative experiences; that pleasures are due to the absence of pain and the intensity of one is often in proportion to the other feeling that preceded it. Spinoza speaks of pain as an emotion whereby the body's power of activity is diminished or checked. Cicero described pain as a disagreeable movement in the body. Gambuus called it a disagreeable sensation which the mind would

Oration in Medicine, read before the Illinois Medical Society at Peoria, Illinois, May 18, 1937.

rather not experience. Sauvage spoke of it as a disagreeable sensation originating from any lesion in the nerve fibres. Valentine said that too great an intensity of stimuli may cause pain. Erb held that any increase of sensory stimuli was capable of producing pain as soon as it attained a certain degree of intensity.

It will be concluded from the above definitions that there are two ideas underlying definitions of pain, one having to do with the physical and the other with the metaphysical side. We have, therefore, a group of observers on the one hand that claim that true visceral pain does not exist, and on the other those who assert that it does. If it be conceded that the viscera have a pain mechanism, the question arises as to why they should be so much less sensitive than somatic tissue. It is thought that the answer to this is found in the statement that it is the type of stimulus that is more important than the intensity. This is in accord with the idea that pain is an adaptive function, evolved from the primitive nervous system to protect the individual from harm. Hence, according to this conception, it would seem reasonable to believe that sensibility to pain would be best developed for the types of injury which threaten naturally the functional integrity of visceral organs. Hence, in the case of a hollow viscus, over-distention or obstruction to its lumen would threaten its normal function, and it would be anticipated that muscular effort to expel the obstructing object or overcome the distention might give rise to adequate stimuli, resulting in visceral pain. Hertz has demonstrated with reasonable certainty that distension of a hollow viscus was an adequate stimulus for pain. Ryle added to Hertz' concept by emphasizing that degrees of contraction normal in their nature was also an adequate stimulus. Payne and Poulton have showed that when a smooth muscle tube is distended, a peristaltic contraction wave may actually relieve the pain if it shortens the muscle length and diminishes the tension acting on the stretched nerve ending in the wall. In all of these instances it will be noted that the adequate stimulus was an abnormal degree of tension acting upon afferent nerve endings. It is now quite generally conceded that tension acting on a smooth muscle may give rise to pain.

May there not be other mechanisms whereby visceral phenomena may express themselves at the periphery and produce changes that give rise to pain other than the explanation Mackenzie offered as to the overflow of impulses to somatic neurons in the spinal cord? As a summary, it may be said that pain may arise from visceral disease when the stimulus is adequate. In most instances adequate stimulus appears to be an abnormal degree of tension acting on a visceral afferent nerve ending. Pain of visceral origin resembles thalamic pain to a remarkable degree. Visceral pain is frequently associated with referred phenomena, pain, hyperalgesia and muscle spasm. When these appear at a distance from the site of the viscus they are probably due to viscero-motor reflexes involving the peripheral blood vessels and skeletal muscles. When they appear close to the site of the inflamed viscus, there may be in addition to the visceral reflex phenomenon direct somatic reflexes secondary to an involvement of the parietal peritoneum by the inflammation.

Another thing that has been overlooked, perhaps, in the argument is that the visceral organs that under normal conditions do not produce pain, will when inflamed give rise to pain phenomenon.

Pain is part of an elaborate though primitive protective mechanism against noxious agents and as such is largely a thalamic sensation.

In literature, pain has been as variously defined as by scientists. Pain is the outcome of sin, said old Buddha, while Tupper thought it added rest unto pleasure and taught the luxury of health. Bentham considered Nature as having put mankind under two sovereign masters, pain and pleasure, and that it was for them to point out what we ought to do, as well as to determine what we shall do. Bulwer said that the refinement which brings us new pleasures exposes us to new pains. Bryant thought of it as a transient guest, for pain dies quickly and lets her weary prisoner go; the fiercest agonies have shortest reign. It is the deepest thing in our natures, said Hallem, and union through pain and suffering always seems more real and holy than any other.

Is There a Center for Pain? Many physiologists today hold that the pain center is located in the optic thalamus. Unlike other sensations, however, there are no special means for pain production, and another peculiar feature about it is that it may be aroused by the most varied stimuli.

Sensation, on the other hand, is a thing that is aroused by well defined and limited stimuli and which must be exerted on a special sensory perceptive apparatus, and these sensations themselves may be both painful and pleasant. Therefore it would seem that pain and pleasure are but attributes to sensation and cannot be kept by themselves as separate sensations. As an illustration, taste, smell, hearing and sight, with sensations to heat and cold, may all be painfully as well as pleasureably received.

It is now believed that the thalamus is the center of awareness, that it is concerned with the protective, affective and non-discriminative elements of sensation, that here are perceived the sensations of contact, of pain, of heat and of cold. It further appears that the response of the thalamus to impulses exhibits the all-or-none character. It has long been appreciated that sensation subserves two purposes, (a) to protect, (b) to learn. In the face of this conception, it would seem that while the thalamus may effectively act as a protective mechanism, its manner of response seriously interferes with the learning process. Fortunately, this learning process function is subserved by the cortex of the brain. The sensory cortex is essential for accurate localization, for fine discrimination of touch, for recognition of spatial relations and for posture. It is connected with storehouses of memory that enable the individual to estimate the intensity and meaning of the individual sensations in the light of past experience. It would seem then that the cortex inhibits the vivid and explosive thalamic responses so that the individual can develop powers of discrimination and may learn to evaluate light touch, ranges of temperature, localization and spatial recognition, thus enabling him to build up a store of experience and thus become capable to initiating responses that may be termed intelligent.

The Purpose of Pain Sense. Viewed from a developmental standpoint, the digestive cavity was first evolved in animal life, then the circulatory system appeared, and to this was added the respiratory system. To coordinate these a nervous communication was developed. At first these were encased in an insensitive and unyielding outer covering. Later this became modified in such a manner as to provide protection and movement as well. Protection was matured by rendering this outer covering sensitive, uniting it with muscles by means of a reflex nervous system. Pain stimuli excite consciousness of the muscles or stimulating contractions, so that the organism is removed from the offending neighborhood, or there is interposed between the offending agent and the viscera some resistant material such as a muscle. Then came the hooking up of the nerves of the viscera with the sensory motor nerves of the cerebrospinal system, so that the muscles of the external body could react to a stimulus from the viscera. From this point of view the primitive nervous system corresponds with our present-day sympathetic, while the more latterly developed sensori-motor system corresponds to the cerebrospinal nervous system. Hence we find that pain is elicited only by stimulation of structures that are supplied by the cerebrospinal nervous system. Thus when pain arises in the viscera, it does so by calling into play the cerebrospinal system of sensory nerves, and the pain is then referred to regions supplied by that system. Hence pain can be the result of reflexes through sensory, motor and organic sources. Mackenzie, therefore, defines pain as a "disagreeable sensation due to stimulation of some portion of the cerebrospinal nervous system and referred to the peripheral distribution of cerebrospinal sensory nerves in the external body wall." It is the sympathetic or autonomic nervous system that presides over the functions included in the different organs. Much experimental work has been done to establish the distribution and functions of the nerves that pass from the center to the periphery, but little work has been done to examine the nerves that pass from the viscera to the central nervous system. Mackenzie believes that in the production of visceral pain the afferent nerves of the autonomic system convey a stimulus to the cerebrospinal nerves and stimulate them, so that such phenomena as pain as experienced in the external body wall are the evidences of stimulation by the afferent autonomic nerves. The tissues of the visceral organs are insensitive to stimuli that produce pain in the external body wall. In the course of its passage from the skin to the brain a nerve may be subjected to stimulation and if it be sufficient to provoke a response, pain will be felt and it will be localized not at the point where the stimulus was supplied, but in the field of the peripheral distribution of the nerve. The pressure of a growth on the trunk

of a nerve gives rise to pain when a pain nerve is stimulated, and the pain is referred to the peripheral distribution of the nerve. Every nerve when stimulated to activity gives rise to an action peculiar to its function, hence if a pain nerve be stimulated to the point of pain the pain is referred to the peripheral distribution of that nerve.

Causative Factors in the Production of Pain. Of course, production of pain depends on the presence of a proper stimulus and the integrity of a receptive, to which must be added the conveying and interpreting apparatus. The stimuli may be divided into those which are due to 1. mechanical changes in pressure, 2. toxemia, 3. chemical changes, 4. electrical or thermic reaction, 5. mechanical changes. It is interesting to note that the given stimulus that results in pain may not be of any greater magnitude than that which is daily experienced by the organism, yet because of frequent repetition the condition is finally reached before recovery from one stimulus the cell receives another, and so on. Each stimulus leaves a little of its irritative quality until retention from the accumulation of these irritative remnants become too great and release of nervous energy takes place in the cell, the pain threshold is reached and the sensation of pain results. After having once overcome this threshold, succeeding discharges of this irritative nervous energy take place on a slighter provocation.

The Sensitive Tissues of the External Body Wall. There are three great layers that are endowed with exquisite sensibility to pain, 1. the skin, 2. the voluntary muscles, 3. the loose connective tissue lying immediately outside of the peritoneum. Although the belief is almost universally held that the viscera are endowed with sensory nerves, and although physiologists refer to afferent sympathetic nerves as sensory in function, not a single authentic observation has been recorded to show that the viscera have a distinct sensibility of their own. That pain can be produced by visceral stimulation is not denied. Pain from the introduction of an enema in the lower bowel is a simple illustration, but after many years of careful note recording, the conclusion has been arrived at that the situation of the pain does not, as a rule, directly afford any clue to the situation of the lesion. Stimulation of any part of a nerve that leads to a sense organ gives rise to a sensation that is referred to the peripheral distribution of the nerve. A visceral pain, then, seems to be really a viscero-sensory reflex.

ABDOMINAL TOPOGRAPHY

The need for a uniform topographical nomenclature is apparent, despite the impossibility of exactness. The visceral organs are more or less mobile, new growths have no fixed limits and even the surface landmarks are subject to flux because of individual and postural variations. Added to these difficulties are the numerous suggested markings, no one of which has met with even a majority approval. Addison's zoning is, perhaps, the simplest and recognizes some five surface landmarks that are fairly constant: 1. the suprasternal notch, 2. the upper border of the symphysis pubis, 3. the right and left anterior superior spine of the ilium, 4. the mid point of the mid-line of the body. This last point is remarkably constant; it lies opposite the lower border of the first lumbar vertebra and is located by taking the mid-point between the suprasternal notch and the symphysis pubis. The same point is determined by finding the mid-point between the tip of the ensiform and umbilicus. This point represents the site of the dorsal attachment of the transverse mesocolon and likewise the line of separation of the abdominal cavity into the supra and infra colic divisions.

From zoning as a common denominator, it was an easy stage to charting "points" and "triangles". Their value depends upon their flexibility for underlying structures and constancy of the surface landmarks. Their weakness is, in large part, their designation by proper names and a needless confusion from multiplicity. The original description in McBurney's own language of McBurney's point reads: "located between 1½ and 2 inches of the anterior superior iliac spine on a straight line drawn from that process to the umbilicus". "In every case (of acute appendicitis) the seat of greatest pain, determined by the pressure of one finger has been exactly at this point." McBurney did not mean that there was a fixed point of tenderness applicable, topographically, to all patients, but that there is such a point for each patient and this would be found located between 1½ and 2 inches from the anterior superior spine on the spino-umbilical line.

It is surprising how many inaccurate statements in current literature, including text-books

and even dictionaries, have been made concerning the location of this diagnostic area. The site remains unchallenged, the explanation of the phenomenon has changed. McBurney thought the site indicated the location of the base of the appendix. Among those who recognized quite early McBurney's anatomical error was Murphy of your own state; he rather exhaustively reviewed the many explanations offered for the phenomena such as excitation by pressure underlying sympathetic ganglia, inflamed lymph nodes, extension of a lymphangitis, but held that the real explanation was that the point was a local area of cutaneous nerve distribution which served a reflex connection with afferent stimuli arising from the appendix regardless of the position of the appendix itself. The point is a fixed one then for a symptom as well as for a sign; it is the site where the end of the 11th thoracic nerve comes to the surface.

THE VISCERAL NERVOUS SYSTEM

When thinking in terms of "the Visceral Nervous System" the casual student must be confused by the nomenclature. Particularly would this be true of the graduate of thirty years ago, who came to think of it as made up of two parts, the voluntary and involuntary. These were succeeded by the terms vegetative and somatic; later they were designated vagus and sympathetic, while latterly the student was taught to think of them as the sympathetic and autonomic, and the present-day medical student recognizes it under the terms sympathetic and parasypathetic. Every organ in the abdomen is supplied with afferent neurons that carry impulses to the central nervous system.

Three sets of nerves pierce the roof of the abdominal cavity. (a) The vagus, having wandered through the neck and thorax, supplying adjacent organs, reaches the abdomen to innervate the digestive tract from the cardia to the colon. It carries but few sensory fibres; an operation in the upper abdomen may be done quite free of pain by blocking the splanchnic only; cutting the vagus will not stop the pain of tabes; it will stop vomiting but it must be cut bilaterally. The apparent asymmetry of the vagus nerves, with the left distributed to the front of the stomach and the right vagus to the posterior wall, is explained by the rotation of the stomach while an embryonic viscus. Likewise, the large bowel during intestinal rotation comes to rest on top of the small intestine. Thus the cecum and appendix are carried to the right upper quadrant and lodged below the liver. The transverse colon comes to be superimposed on the duodenum, the lower portion of which now lies under the superior mesenteric artery. The embryological explanation of duodeno-mesenteric ilius is now offered. The appendix and cecal head do not long remain just below the liver, as they are carried downward by the growth of the cecum to the lower right quadrant. In about 2% of all human beings faulty development of the cecum occurs and the appendix remains in the high embryonic position. An acute inflammation of such an appendix may confuse the picture with gall bladder or even biliary duct disease by placing the "pain" in the upper right quadrant. More rarely, no rotation of the intestines occurs, and then the small bowel lies largely on the right side of the abdomen and the cecal head and appendix are found on the left side. Such a condition is not a transposition of viscera but a failure to rotate.

(b) The sympathetic reaches the organs of the abdominal cavity through the splanchnic division. The system originates from the spinal cord, beginning wth the first thoracic and ending at the third lumbar. The splanchnic nerves are largely preganglionic and all of its afferent fibres are connected with posterior root ganglia; most of the sensory fibres of the upper abdomen leave it by way of the greater splanchnic nerves, but Foerster and Shaw seem to have shown that the anterior roots of the cord also carry sensory nerve fibres. The sympathetic ganglia are masses of nerve cells that form the motor neurons. The function of the sympathetic system is not just sensory and motor, but are secretory and trophic as well. The function of the ganglia, likewise, is a composite one; they not only reinforce impulses coming from the central nervous system, but they are distributing centers as well—the number of fibers leaving a ganglion are always more numerous than those coming in.

(c) The phrenic nerves are derived from the 3rd, 4th and 5th cervical nerves, supply both surfaces of the diaphragm and carry both sensory and motor fibres. The induction of artificial pneumoperitoneum may induce a severe pain in the supraclavicular regions or at the tip of the shoulder. Any subdiaphragmatic irritation

causes pain, soreness, tenderness or hyperesthesia in the cutaneous areas of the neck. Pottenger has called these "sensory collars." The old anatomists in naming this nerve were impressed with its action on the diaphragm during emotion,—a state of frenzy, as it were,—hence the name. The nerve supply of the diaphragm is another instance of maintenance of nerve connections of the embryonic period regardless of changes in position of the organ. The diaphragm lies opposite the 1st cervical vertebra during the first weeks of embryonic life.

Visceral Pain. In the normal processes of life a succession of stimuli is constantly passing from the viscera by the afferent nerves to the spinal cord and reacts upon the nerves by muscles, blood vessels and other structures. These usually cause no appreciable sensation. But if a morbid process obtains in any viscus and an increased stimulus passes by the afferent nerve to the spinal cord, this stimulus may affect neighboring nerve cells, and these nerve cells react according to their function. When it is a sensory nerve, pain is produced and will be referred to the peripheral distribution of the nerve so stimulated. The viscera are insensitive to those methods of stimulation that produce pain in the external body wall. Harvey long ago described the insensitiveness of the heart muscle. Mackenzie says that he has stimulated nearly every organ of the body and failed to elicit pain by procedures that would elicit pain when applied to the external body wall.

There have been two schools of thought concerning the question of sensibility of the abdominal viscera, one maintaining that the abdominal viscera of themselves were not capable of producing pain phenomena, the other holding that they were. Perhaps one of the reasons for this division of opinion rests on the fact that the stimuli used to elicit pain response are not suitable for elicitation of pain response in the viscera.

It has long been known that the internal abdominal organs appear insensitive to cutting, burning and other forms of trauma that occasion pain when applied to somatic tissues. Pain of visceral origin may be expressed in parts of the body distant from the diseased process and skin areas may be hyperesthetic and somatic muscles in spasm in regions where only the possible relation to the organ is a common cord level for the nerve involved.

The reason why pain is referred to portions of the body so far apart is because in its development organs have been separated or displaced. One of the best evidences as to the true nature of visceral pain is found in the manner in which pain spreads. The diffusion of pain over a wider area than that occupied by the organ where the stimulus which produces the pain originates can be proved in many ways.

An instance of common knowledge is found in the pain of angina pectoris. When the pain passes from the front of the chest into the axilla and down the left arm, the explanation is found in the fact that the pain is felt in those areas which are supplied by contiguous nerve roots, namely, the third, the second and the first thoracic nerves.

The following are some of the reasons urged that pain is not actually felt in the abdominal organs where the disease is located, but referred to the tissues of the body wall instead. (a) Gastric pain, epigastric in location; though the stomach may lie at a much lower level, even in the pelvis, epigastric pain remains constant in location though the stomach shifts. (b) Intestinal loops that twist and coil throughout the entire intra-colic division of the abdominal cavity, yet the pain is hypogastric and pelvic in location, while in the case of the small bowel it is referred around the umbilicus. When cuts illustrating the distribution of pain are compared with the anatomical distribution of nerve supply to the gastrointestinal tract, the nature of this reference of pain to the midline of the body is really surprising. It is interesting that diseases of the stomach and duodenum give rise to pain over some six inches of the mid-line, while affections of the small bowel, covering 20 feet in its tortuous course, have a body wall zone of no greater than 5 or 6 inches about the umbilicus. And it is also interesting to inquire why the large bowel pain is situated at a lower point than the small bowel pain, when as a matter of fact, anatomically, the colon describes a loop about the periphery of the abdomen and has right and left flexures which reach to the hypogastric region, while the terminal ileum is situated at such a low point in the abdomen, or even may be in the pelvis. So that when one studies this adult surface map for pain in juxtaposition with a picture of a six-week embryo, the situation becomes more easily clarified.

From this embryo it may be seen that the upper third of the abdominal portion of the archenteron gives rise to the stomach and proximal duodenum, that the mid third gives rise to the terminal duodenum, the remaining parts of the small intestines, the cecum, the appendix, ascending colon and the proximal portion of the transverse colon; while the distal third in the primitive bowel gives rise to the remaining portion of the colon. And as the nerve tissue is being distributed at this period of development, and since the central nervous connections are established at this time, it follows that all subsequent twists, elongations or any other changes that occur in individual portions of the digestive tract have but little effect on the adult reflex pathways. Relationship of the three primary divisions of the archenteron to the three equi-distant zones of the midline of the anterior abdominal wall remains fixed and constant.

The fact seems to be pretty well established that diseases of the stomach produce pain in the epigastric region with considerable regularity. The confusing part of the study of the causes of pain follows in the statement that all epigastric distress does not necessarily signify a gastric lesion. Stewart referred to the stomach as "the spokesman of the abdomen" and this appears to be true, since an analysis of abdominal conditions disclosed the fact that only about one-third of symptoms referred to the stomach are actually due to stomach lesions. The second third are caused by extra-gastric diseases existing within the abdomen or pelvis: for example, gallstones, chronic appendix, tubercular peritonitis, ovarian cysts, etc. The remaining third of gastric symptoms are due to conditions not even located in the abdomen, but existing entirely outside, as basilar meningitis, brain tumor, pulmonary tuberculosis, exostoses associated with the lower thoracic vertebrae. In fact, it may be said that lesions at almost any point in the body may cause gastric symptoms through either a direct or indirect involvement of gastric vessels and nerves. The enumeration of such a list would be tediously long, but would include such general headings as endocrine disturbances, psychic disturbances, drug poisonings, abdominal allergies and whatnot. If the diagnostician is to arrive at a correct diagnosis, then, when reviewing this subject of pain, he must be thoroughly familiar with the many medical and surgical conditions represented by such an extensive list of actual causes. Hence in his survey, in attempting to correctly diagnose the cause of abdominal pain, he must not only make a thorough examination of abdominal contents, but likewise of the head, the thorax, the extremities, in fact, every region of the body. The abdominal spokesman may merely indicate that there is trouble, and it remains for the diagnostician to correctly identify the organ or tissues diseased.

Embryology as a Basis for Interpretation. The study of embryology of the gastrointestinal system is particularly valuable in explaining the localization of pain due to alimentary tract affections. Mackenzie was a sort of pioneer in this pain-reference study, for as early as 1892 he described his observations on a group of some 320 patients suffering from diseases of the stomach. He found the pain to be localized within the epigastrium in 95% of his cases. Later, in a larger study covering several thousand cases, he came to the conclusion that the patient does not actually feel pain within the viscera, but refers it to the abdominal wall and to the area of distribution of the sensory nerves of the cerebrospinal system. He thought that pains from digestive disturbances were interpreted by the patient as arising at the periphery of the sensory nerve distribution, that is, approximately midline of the body anteriorly. He proceeded to plot the anterior surface of the lower chest and the abdomen with regard to the nerves in patients with abdominal organ disturbance.

Hurst, in disagreeing with Mackenzie that pain is not felt in visceral organs, argues that the viscera show a somatic or referred pain expressed through spinal nerves, and also a definite visceral pain.

The gastrointestinal tract or the enteric canal is some five or six times the length of the body. Its extreme length represents an adaptation to a function. The abdominal cavity is occupied almost entirely by organs that have to do with the processes of alimentation and a consideration of the conditions which may obtain in this space will of necessity demand that a major portion be given to the enteric canal.

Embryology here as elsewhere has proved the most reliable guide in explaining adult conditions. It is only through an insight into the series of changes that take place during embryonic life that many observations made at the

bedside and many surgical maneuvers are made clearly intelligible. It may be said that embryology is the mechanism by which signs and symptoms are initiated.

Viewed embryologically, the abdominal portion of the human body is fundamentally a tube suspended within a tube. The external surface of the outer tube is derived from the ectoderm and is largely protective and relational in function, while the inner lining of the inner tube, which in actual square surface more than equals the area of the skin itself, is derived from the endoderm and represents the nutritional tissue of the body. Between these two tubes is the potential space, whose walls are derived from the mesoderm, and is known as the abdominal cavity, or the extra-visceral cavity, the peritoneal cavity. The study of the clinical significance of these three primary germ layers involves a consideration of four topics, 1. Origin of the gastrointestinal tract. 2. Origin of the peritoneal cavity. 3. Distribution of the adult gastrointestinal tract. 4. Final attachments of the gastrointestinal tract.

Origin of the Gastrointestinal Tract. It will be recalled that the enteric canal develops from the yolk sac. It is formed from this structure as the embryonic rudiment bends forward at its cephalic and caudal extremities, creating the anterior abdominal wall. At first the enteric canal is lined at its cephalic and caudal ends, while the middle part of the ventral wall is continuous with the wall of the yolk sac. That portion of the tract that opens into the yolk sac is called the midgut, that which is cephalic to this opening is called the foregut and that which is caudal is called the hindgut. The opening in the yolk sac gradually narrows as the anterior abdominal walls close in, but a connection is maintained by a slender tube called the yolk stalk or the vitello-intestinal duct. With the degeneration of the yolk sac into a yolk vesicle this vitello-intestinal duct exerts a traction on the intestine that is at the point of attachment and thus draws a loop of small bowel out of the body cavity into the umbilical cord. This intestinal loop with the duct at its apex has two limbs. The first of these has been variously termed proximal or descending limb, the second the distal or ascending limb. This protrusion of bowel into the umbilical cord is known as the embryonal-umbilical herniation. The loop begins to enter the cord at the 10 m. m. embryo stage or (three weeks) and the degree of herniation increases until the 10th week ends embryo life. Normally after this period the bowel returns to the abdomen. The umbilicus is the last point in the abdominal wall to close and the navel represents the central point in the anterior body wall. In the adult the only trace of the early connection between the intestinal canal and the umbilicus is the rather rare existence of a diverticulum uniting the lower portion of the ileum with the navel. This is called Meckel's diverticulum.

VISCERO-SENSORY REFLEXES

(a) Gastric.—Sensory reflexes from the stomach are commonly located to the left of the midline anteriorly, and on the skin distribution of the sixth and seventh thoracic nerves posteriorly. Acute dilatation results in a widespread pain. In the stomach, as in all hollow viscera, distension is the natural stimulus of sensory nerves.

The stomach is supplied by nerves from the dorsal sympathetic and from the vagus. The skin over the epigastric region receives its nerve supply from the sixth and seventh thoracic nerves and the upper portion of the rectus is supplied by the sixth nerve. The burning pain of heartburn is generally felt over the lower part of the sternum in the region of the distribution of the fifth thoracic nerve in the chest. The cause of this, perhaps, is regurgitation into the esophagus of the acid content of the stomach. Ninety-five per cent of pain originating from affectations of the stomach are referred to the epigastrium. The stomach is a hollow muscular viscus, but severe cramping pain from violent peristalsis is rather rare. Cramplike pain referred to the epigastrium is more likely to be due to a gallstone. The pain from stomach disease is usually of a dull boring character, with an outstanding trait of prolongation, varying little in intensity from time to time. The relation of pain to the ingestion of food is variable. The effect of pain on the digestive function is akin to the effect of emotional states. Both motility and secretory activity are inhibited largely through their effect of stimulation on the sympathetic system which antagonizes the normal action of the vagus. Food may remain in one part of the digestive apparatus indefinitely with no digestion changes.

Cardiospasm may cause pain. Some fourteen

years ago Carlson asserted that the cardia was innervated by both the vagus and sympathetic nerves and spasm resulted from stimulation of the efferent branches of either system. If this be a physiological fact, it upsets the rather general thought that an antagonistic action obtained between the vagus and the sympathetic. However, Pearcy and Van Liere demonstrated a stimulus in one part of the digestive tract could induce inhibition in some other part. By such mechanism disease of the appendix, biliary tract or the urinary bladder may cause cardiospasm and its resulting phenomena. A dysphagia may be painful and simulate gallstone colic, particularly if due to a cardiospasm. While dysphagia would ordinarily lead one to think of some pathology in the esophagus, yet it must be remembered that peptic ulcer is frequently associated with spasm of the cardia. Under such circumstances dysphagia will develop.

A sense of fullness is not an uncommon experience in peptic ulcer. It occurs as well in functional disorders. Where there are organic causes for this sensation, they are usually things that reduce the capacity of the stomach. The sense of fullness may be the result of pylorospasm, or on the other hand it may be the result of an atonic gastric musculature and sometimes of either a flattened or slightly reversed gradient of forces in the digestive tract.

(b) Intestinal.—Pain sensation originating in the small gut is usually referred around the umbilicus. If the colon is the site, the reference is in the mid-line between the navel and pubic bone. Soreness or hyperesthesia, either or both, are common accompaniments. Disease of the bowel usually causes localized or general increase in muscle tonus. This is not a uniform peristalsis, however, but rather an irregular contraction of the circular fibres, which results in pain of a colicky nature. This type of pain is associated with increased vagal tone, whether acquired or inherent to the individual. The peristaltic wave is slowed above the point of irritation and is quickened below; the bowel distends above the site of trouble and colicky pain results.

The pain from appendicitis is often felt around the umbilicus at the beginning of an attack, but tenderness and guard at the site of the appendix may be determined this early. Transference of the pain sensation to the left side of the abdomen may occur when the appendix is on the right side; the clinician often concludes, in such instances, that the appendix is situated on the left side or that the tip crosses over. Such a conclusion is usually wrong, for the location of the appendix does not alter the relationship of the reflexes which are concerned with the pain. Involvement of the peritoneum, some other visceral organ or a shifting of different stimuli in the spinal cord, one or all of these may supply the answer. The early pain of appendicitis is perhaps a true visceral pain, later it is due to an involvement of the parietal peritoneum.

(c) Peritoneal.—The parietal peritoneum is supplied by the same sensory nerves as are distributed to the overlying skin. A localized peritonitis, involving the parietal layer, causes pain over the site of inflammation, as well as rigidity of the muscles in that region.

The pain in intraperitoneal injury is deep-seated, widespread and is commonly located by the patient in the region of the umbilicus. The shock accompanying is the result of an overstimulation followed by paralysis of the vital reflex centers, respiratory and vasomotor.

(d) Pancreatic.—The pain in acute pancreatitis is severe, even intolerable. It is located in the same peripheral sensory area as is found in stomach diseases, just to the left of the mid-line in the epigastric region. The reflex may spread, as in other conditions, to adjacent neurons, hence felt in the neck, shoulder and in right abdomen. The pain felt in the neck and shoulders is explained by assuming the pancreas receives fibres from the phrenic nerve which contacts the cervical segments in the cord.

(e) Biliary Tract.—The viscero-sensory reflexes expressing pathology in the liver and gall-bladder are found in three areas, along the right costal margin, under the right shoulder blade and in the right Kroenig's area. A study of the nerve supply of the biliary tract offers a ready explanation for the clinical symptomatology common in disease of these structures. From the vagus come activating fibres to the gall bladder and ducts and fibres of inhibition to the sphincter of Oddi. The sympathetic system supplies antagonistic action to the vagi; its fibres derive from the semilunar ganglia, to which are supplied fibres from the 5th thoracic to the 9th. In addition, the phrenic nerves from the spinal cord go to the liver and gall bladder, the

phrenico-abdominalis goes along with the sympathetic from the celiac plexus, the afferent impulses from which travel over the sensory fibres of the right phrenic nerve to the 3rd and 4th cervical segments. The clinical application of this anatomical study covers the viscero-sensory reflexes of the liver and gall bladder. Pain will be felt in the right rectus region because of the connection between the sympathetic from the semilunar ganglion and the 5th to 9th dorsals; it may follow the zones of these dorsal nerves to the back, hence the subscapular pain; it may follow the phrenic, which connects with the cervical segments of the spinal cord and thus pain may be experienced in the region between the clavicle and spine of the scapula which is innervated by the 3rd and 4th right cervicals.

By far the most common extra-gastric cause for epigastric distress is some affection of the biliary adnexa. The possibility of gallstones should always be borne in mind in any case of chronic indigestion, and when viewed embryologically, the bile ducts, it will be recalled, arise as an outgrowth of the developing duodenum (endodermal portion) and it might therefore be anticipated that when pain is thus produced, reference of that pain to the middle of the anterior abdominal wall would correspond to the surface zone for the gastric and small intestinal pain. That this is not wholly theoretical is made clearer by a study of Bodenstab in 1918 and Akana, Greely and Farr in 1927, where it is concluded that from 20 to 40% of all cases of cholelithiasis and cholecystitis find the pain referred solely within the epigastric region. And even those cases in which the chief pain is referred to the right hypochondriac region in gallbladder disease, there is almost always some epigastric pain as well. It may be concluded, therefore, that regardless of a spinal radiation or other localizations that biliary duct pain, unassociated with local peritonitis or other complications, is primarily epigastric. May not this anatomical fact explain the rather considerable percentage of incidence in which gallstones have been clinically characterized as "silent"? One so often reads in the records of such cases statements like the following: "There were no preoperative symptoms referable to the gallbladder"; "Complaints before operation were entirely gastric"; "Chronic indigestion"; "Chronic gastritis"; "Dyspepsia." It may be that we have been waiting for rigidity in the upper right quadrant, for associated pain in the right shoulder, for an inspiratory dyspnea and jaundice before our attention is correctly invited to a gallbladder disease which for months or years has been causing varying degrees of epigastric discomfort.

Another interesting feature in connection with this reference of biliary tract disease to pain is found in the frequent statement that the gastric symptoms of biliary tract disease are due to "reflex stomach." It is perhaps the vagus reflexes and that such gastric dysfunction as hypermotility, hyper-irritability, hyper-secretion, pylorospasm, all of which may be demonstrated by fluoroscopic study or fractional analysis of stomach contents, can easily be explained on the basis of biliary tract disease. When one remembers that the biliary tract itself is capable of initiating epigastric pain, one does not necessarily have to invoke reflexes to explain that pain.

(f) Relation of Blood Vessels to Abdominal Pain.—A consideration of such evidences of obstruction of veins as dilated collateral superficial vessels is not contemplated. Conditions which result in pain constitute our present interest and the veins bulk larger in importance than arteries in such grouping.

Emboli in the liver are the result of (a) disease of the appendix, (b) infections of upper abdominal structures and (c) operations on upper abdominal viscera. The liver is a filter through which emboli from the veins of the portal system must pass; if they are infected, liver abscess results, with only infarction if sterile. Operations and infections in pelvic organs infrequently result in hepatic emboli because the veins of these structures drain into the iliac veins. Pulmonary emboli and infarctions are in consequence more common from these systemic emboli.

The location or radiation of pain in the liver from emboli or abscess is not at variance with such phenomenon from other causes. The thoracic, even precordial pain of pulmonary embolism, may be the first signal of something wrong in the liver, abdomen or pelvis. The incidence of thrombosis following abdominal and pelvic operations averages about 3% of cases. Embolism results in at least 50% of all postoperative thromboses or in 1.5% of all cases.

The most frequent cause of a symptomatic varicocele is a tumor of a kidney and may antedate discomfort in the renal region. An embolus in the superior mesenteric artery produces a clinical picture that very closely resembles acute intestinal obstruction, particularly when of mechanical origin. Complete blockage is promptly followed by extensive hemorrhagic infarction of the intestine. It is also possible for a petechial hemorrhage occurring in the cecum or appendix from purpura to closely imitate an appendicitis. Angina abdominalis may be referred to individual abdominal organs with a close mimicry of an acute disease in such organ.

A summary of the two theories of visceral pain may thus be concisely stated:

Mackenzie's theory holds that impulses arising in diseased visceral organs pass to the cord over the sympathetic nerves, there establish an "irritable focus" and overflow into somatic pain tracts. Pain is thus referred to the peripheral somatic nerve ends in the area where the spinal overflow occurs.

Morley's theory, on the other hand, holds that true visceral pain is conducted by sympathetic nerves directly to the brain independently of somatic nerves. Therefore, true visceral pain is not well localized, does not radiate, is not associated with rigidity nor tenderness of the abdominal wall.

The espousal of either of these leaves unanswered an inquiry as to the mechanism of visceral pain. If ischemia be the cause, as Sutton and Leuth argue, in angina pectoris, there still remains unanswered the query, what does anoxemia do? Was Lewis correct when he attributed the pain of intermittent claudication to the accumulation of metabolites in a functioning muscle of a leg but inadequately supplied with blood? If such analogies may be applied to the intestinal musculature one is prepared to accept the term intermittent claudication as applicable to the type of pain occurring in a partially occluded mesenteric vessel. And further, one is prepared to accept the clinical picture of a persistence of pain and a paucity of signs as suggestive of an abdominal vascular disaster.

Taube believes such a condition may attack any part of the vascular tree and distribution may be extensive. The incidence, as found in his study of the literature covering 26 cases in 1931, was the renal and iliac each one, the mesenteric, celiac axis and spermatic arteries each two, the cerebral three, aorta four and the coronary fourteen times. Buerger reported the first case of proved mesenteric artery involvement. Sprunt's case was diagnosed clinically as mesenteric thrombosis and is interesting because the abdominal picture antedated involvement of an extremity more than a year. He emphasizes that it is not the presence of an inflammatory lesion, but its extent and the resulting ischemia that causes the pain. In all of the records of cases reported pain appears to be an outstanding symptom, often described as agonizing. A rather singular feature of the pain is that deep pressure on the abdomen appears to afford some relief. The patients are uniformly restless, walking about or tossing about in bed, sometimes even lying on the floor. Of course, there are varying degrees dependent on the size of the vessel involved.

In thrombosis of mesenteric vessels circulation can be carried on when a large part of the venous system has been thrombosed. No intestinal infarction occurs as long as the anastomotic arcades and their radicals remain free and some tributaries opening into a vein above the clot are patent. Extensive thrombosis only leads to lesions confined to a small region of the bowel.

Primary mesenteric thrombosis results from gradual constriction of an artery, generally an arteriosclerosis. Secondary mesenteric thrombosis usually follows operations with infection, then a thrombo-phlebitis results, with gangrene. The symptoms resemble bowel obstruction. This is really what it amounts to since the bowel with blood supply loss becomes inactive. Pain is of sudden onset, tends to radiate to the lower abdomen after a period of general distribution with no localizing symptoms. In superior mesenteric vessel pathology it is just above and to right of the umbilicus. The possibility of mesenteric thrombosis is suggested if a mitral stenosis or subacute bacterial endocarditis or a septic lesion obtains in the abdomen.

I have had but one case that was verified by autopsy study. This was a man of 52 who had thrombo-angiitis obliterans of the left leg with amputation. One year later he had a sudden attack of severe pain in the epigastric region with vomiting, a normal temperature and a low grade muscle rigidity. He died before surgical relief was had and autopsy showed the ileum

gangrenous for some 16 inches, the mesenteric vessels sclerosed and one thrombosed.

This much emphasis has been laid on this possible causative factor in abdominal visceral pain because, while described frequently in the literature, acceptance as a clinical fact has not been general. The attitude of the profession has undoubtedly been due in no small degree, to the pronouncements of Allbutt and Osler that abdominal pain in patients with vascular disease was a part of an anginal syndrome. That opinion is yet divided may be concluded by citing Morley's[6] statement that there is no evidence of vascular disease in the abdomen causing pain other than the resulting gangrene and peritonitis, and the conclusion of Conner that visceral arterial disease is analogous to coronary disease. Dunphy has more recently reviewed a group of patients dying of occlusion of the mesenteric arteries. He concluded that vascular disease can cause abdominal pain without gangrene or peritonitis and postulates it to be due to anoxemia of the musculature.

If it be a true visceral pain the sensation is conveyed by sensory neurones in the sympathetic nerves independent of musculo-cutaneous fibres. It is noteworthy that the absence of muscle rigidity and localized tenderness in cases of mesenteric vessel occlusion presents a striking contrast to the clinical picture of an acute pancreatitis or intestinal perforation.

(g) The Pain of Peptic Ulcer. The hunger pain of peptic ulcer is one of the most striking symptoms encountered in daily practice. Its origin, however, is still problematic. The two chief explanations that have been offered are (1) that the pain is due to deep muscular contraction, (2) that it is due to an increase in the acidity of the fluid bathing the ulcer. Much of the old tangle of conflicting evidence between the mechanical and chemical factors of pain in ulcer seems to have been straightened out by Palmer. He concludes that the stomach of the patient with an ulcer may be sensitive to an acid at one time and not another; that so much depends on the state of irritability or activity of the ulcer. As an ulcer heals it becomes symptomless; the patient will then rarely feel the presence of hydrochloric acid. But while the ulcer is active, growing, symptoms arise. Ivy, on the other hand, believes that the intermittent type of ulcer pain is due to changes in the tonicity of the muscle at the site of the ulcer, brought about by peristalsis or local spasm, while the continuous type of distress is due to congestive edema and inflammatory reactions about the ulcer, all of which lower the threshold for stimuli. In such an instance the acid plays a role because it irritates the nerves and increases the edema about the ulcer. He accepts the theory concerning the lowering of the threshold as being an important factor.

Alvarez then concludes from a review of the work done in undertaking to explain the pain of ulcer that the main factor is probably a sensitization of nerve endings in the upper part of the digestive tract, a sensitization that causes them to respond painfully even to the presence of an acid or to certain types of contractions, and when the nerves become less sensitive the threshold is raised and the ulcer ceases to cause symptoms. This explanation does not answer all of the problems and he further concludes that one of the lessons to be learned by the clinician from work done on hunger contraction is that he cannot put the stomach at rest simply by withholding food. Actually, in the presence of an ulcer the powerful hunger contractions are much more disturbing, probably more harmful to the patient than are the waves that course over the lower end of the stomach during the period of digestion. Certainly one of the easiest ways in which patients can be made comfortable is by giving them something to eat every two hours.

Disturbances of sensation of a continuous or remittent nature, especially the former, are more characteristic of functional disorders. Patients presenting visceral manifestations, the daily appearance of symptoms, continuous throughout their waking hours, curiously enough not interfering with sleep, reappearing on awakening, are extremely suggestive of functional rather than organic deficiency.

During the developmental period the stomach and the duodenum come from the foregut and extend down as far as the ampulla of Vater. The foregut terminates at the point of entrance of the ducts of the liver and the pancreas. At the end of the second month of fetal life the pylorus marks off the stomach from the duodenum, and when development is complete it is usually possible to distinguish the stomach from the duodenum. By palpation the pyloric muscle is felt with ease and exactly in line of the

pylorus will be seen a thin white line, and in close proximity to this white line is a vein called the pyloric vein, which begins at or near the middle of the anterior surface of the pylorus and runs downward to the greater curvature. However, there are no landmarks in the body that are invariable. When an ulcer occurs on the proximal side of this vein, it is called a gastric ulcer, and when it occurs on the distal side it is spoken of as a duodenal ulcer. It is not a matter of academic interest to distinguish between these two. Moynihan thinks their symptoms are sufficiently distinct to allow an actual diagnosis of duodenal or gastric ulcer to be made with remarkable confidence. The chief symptom of ulcer of the stomach is pain, and uniformity is its major attribute. There may be periods of intermission, they may be long or short, but when the attack comes pain is the chief feature and it always displays regularity. It comes after the intaking of all food even in small amounts. The period of relief from pain after a meal is constant and invariable, both in gastric and duodenal ulcers, until stenosis, subacute perforations or the formation of crippling and embarrassing adhesions take place. When a pain occurs two hours after the intake of food the chances are four to one that it is a duodenal pain. When it occurs within one hour and a half after the intake of food the chances are three to two that it is a gastric ulcer. The fact that the pain is often relieved by the taking of food is a reason that many patients do not lose weight but may actually gain during a period of activity. Smaller meals taken at shorter intervals, which may result in the total amount of food being greater than that which would ordinarily be taken results in a weight gain.

Rivers found that more than 90% of patients with a shallow gastric ulcer complained of a poorly localizable pain. When an ulcer was large and subacutely inflamed at least 50% of the cases were able to definitely localize the pain. Where the pain was due to a perforating ulcer 90% of the cases could accurately localize it in the left upper abdominal quadrant. Whenever the lesion extended to the mesentery, the meso-colon or the abdominal wall, in 93% of cases they were able to note secondary shifts of the pain into the thorax or back. These remarks all apply to gastric ulcer. In the case of a duodenal ulcer, he thought that in an obstructing lesion the distress was usually diffused over the epigastrium and that the sequence of symptoms was generally lost. In a non-perforating ulcer of the duodenum the situation of the pain was poorly defined in some 64% of the cases. In a perforating duodenal ulcer the pain was localized in the right upper abdominal quadrant in 90% of the cases. When a perforating lesion occurred 67% of the patients experienced a shift of the pain to the region of the liver or into the back. The syndrome of a peptic ulcer so far as pain is concerned usually maintains its original characteristics until decided anatomical changes occur in the lesion.

The pain from peptic ulcer probably indicates its presence as a visceral phenomenon by way of the splanchnic nerve. The pain of a perforating peptic ulcer is probably the result of a direct stimulation of the somatic nerves, with a relay of these impulses as pain into the peripheral or painless branches of the somatic nerves. The distortion of the ulcer pain complex may be influenced by the accumulation of impulses of varying intensity over both the splanchnic and somatic nerves.

The presence of two distinctly separated areas of pain may be suggestive of two separate lesions. Recurring lesions offer no particular change from the symptoms caused by the original lesion. In fact, they are usually a rather exact duplication of the original trouble.

Pain is an extremely variable feature in the evolution of gastric ulcer, but is the most constant and characteristic symptom. The degree of pain varies from a mild recurrent one on the one hand to one so great on the other as to induce syncope. It is generally located in the epigastrium between the ensiform and the umbilicus and not infrequently either to the left or to the right of this point. When it radiates to the back it is usually between the 10th and 11th dorsal vertebrae. The kind of food has something to do with the time of the appearance of the pain. Of course, irritative food will make it appear in the first half hour of digestion, while a bland meal may postpone it for one to two hours. When a pyloric stenosis occurs the pain is apt to be more constant. The pain at the pylorus is usually greater than that of an ulcer high up, owing to its fixed position and the difficulty in distending it by the passage of food.

Stenosis, perigastritis and peritonitis convert an intermittent pain into a constant pain. A characteristic feature of the pain of a gastric ulcer is relief by vomiting and large doses of alkalies.

Pain that is characteristic of stomach lesions, particularly of ulcers, is described as dull, boring and deepseated. It differs from colic in that it is neither spasmodic nor does it have equal intensity. The time of the onset of pain after food varies in an individual case, but in that individual case there is a peculiar, almost clocklike, regularity in the onset of the discomfort after the ingestion of food. Ulcer distress has been described as a quantitative dyspepsia rather than a qualitative dyspepsia, as obtains with gall bladder disease, for example. A young person who is hungry but is afraid to eat, because eating regularly sets up pain, can be almost certainly diagnosed as a peptic ulcer patient. The time of the pain bears a rough relationship to the location of the ulceration along the digestive tract. Pain that occurs within a half hour after eating would suggest ulceration near the esophagus, while that beginning from a half hour to an hour and a half after the taking of food would suggest a pre-pyloric ulcer. After this period, when pain occurs, it will be more likely to be duodenal. Some authors refer to the discomfort with relationship to food as "cyclic" and it is interesting to note that Moynihan refers to the "rhythmicity" of a peptic ulcer pain. He thinks that the rhythm with gastric ulcerations is a triple one, that is, the cycle would be *food, relief, pain, food, relief, pain,* triple pain rhythm. With duodenal ulcer, he says that the rhythm is *food, relief, pain, relief; food, relief, pain, relief,* a quadruple rhythm. He thinks that the discomfort begins so long after the ingestion of food that it may be termed a hunger pain and, following the intake of food or alkalies, there is a long period of relief in the case of the duodenal ulcer. In the case of a gastric ulcer, the pain wears off gradually before time has arrived for the ensuing meal, and the period of relief after each is so brief that the patient fears the effect of putting anything into the stomach.

Pain in duodenal ulcer usually appears in three or four hours after meals and generally persists until the next meal is eaten. Graham describes the syndrome as "that in which the pain or distress comes within two to five hours after meals, accompanied by gas, sour stomach and vomiting, one or all appearing about the same hour and continuing until the next meal, or until something is done to relieve the acid state. The symptoms are repeated with uniformity day after day, week after week. Then comes an intermission of perfect relief, or at least remission of the symptoms. In relief from recurring attacks there may be no change in the symptoms unless complication alters the gastric movements and functions." There is a group of cases, however, in which the outstanding clinical feature is the regularity of the pain rhythm. In this group there is no freedom from pain nor is there an interval between the taking of alkalies. With each exacerbation in this group, however, there is the same strong resemblance in symptoms to preceding attacks. Then there is another group of cases in which pain is found in an unusual situation. It may be thoracic, mid-dorsal or hypogastric, and when such peculiar locations are found various diagnoses have been made, such as angina, aneurysm, colonic disease, etc. In this group, however, careful inquiry will almost always reveal the same classical food-pain-food sequence and point the way to a proper diagnosis. In groups where there are isolated attacks of pain in the epigastrium or the right upper quadrant, with posterior extension, symptoms may simulate gallstones.

Pain in duodenal ulcers may be in a most unusual situation. For instance, it may be in the thoracic or the mid-dorsal or the hypogastric region. In such cases diagnosis is difficult, but in spite of the unusual situation of the pain, inquiry almost invariably reveals the classical pain-food-relief sequence.

Pain from both gastric and duodenal ulcers which shifts definitely from its original site is usually suggestive that the ulcer has extended deeper into the tissue. This is referred to as secondary pain. Along with this secondary pain there generally comes changes in other characteristics of the syndrome; since there is less tendency toward intermittency of the sequence, there is less relief from distress by the use of food or alkalies and generally there is also more night distress. Abdominal tenderness and soreness now make their appearance.

PHENOMENA RELATED TO PAIN

Hyperalgesia.—In addition to what is described as pain, another sensory phenomenon is

frequently seen in disease of the stomach. The area that becomes hyperalgesic is the epigastric region. It may be present in the skin or in the muscles or both. In such cases where the patient can localize the seat of pain with great definiteness, it has been observed that when the ulcer is situated near the cardiac end of the stomach the site of the pain and hyperalgesia were at the upper part of the epigastrium. When the ulcer was in the middle portion of the stomach, the site of pain and hyperalgesia were in the mid-epigastrium, and when the ulcer was at the pylorus the pain was felt in the lowest portion of the epigastrium.

Hyperalgesia is usually thought of as a referred phenomenon. It has been used as proof of the accuracy of Mackenzie and Lennander's contention that visceral organs have no pain sense. Notwithstanding, there are certain features about hyperalgesia that indicate it may be the result of pure visceral reflexes. The vascular changes and localized sweating which are so commonly associated with hyperalgesia are surely not the product of somatic nerve action. Whichever side of the controversy one may wish to take, it remains a clinical fact that in disease of a visceral organ hyperalgesia and vascular changes occur which are segmentally related to that organ.

Muscle Rigidity.—Muscle spasm is a common phenomenon in visceral disease. When it occurs on the side of the body opposite to the diseased organ it is diagnostically confusing unless it be noted that the affected muscles and the visceral organ receive their nerve supply from the identical cord segments. Furthermore, there is no little evidence to show that different somatic neurons to skeletal muscles may be stimulated directly by visceral afferent impulses. Morley has emphasized a direct extension of inflammation to the parietal peritoneum as a common cause of muscle guard in intraabdominal disease. Livingston is in partial agreement with such an explanation when he cites the absence of resistance of muscles in the anterior abdominal wall in a retrocecal appendicitis and of spasm in the right psoas muscle; attention is called to the fact that this muscle is supplied from a spinal cord segment different from the appendix. Since the parietal peritoneum is well supplied with afferent somatic neurons it must respond to a wide range of stimuli. Livingston further argues that pain thus produced should be considered distinct from the local hyperesthesia; it is spontaneous, while hyperesthesia needs an added stimulus as touch or pressure.

Acceptance of such factors as part explanation for visceral pain does not lessen the importance of visceral reflexes. They do effect changes in the abdominal wall that aid in diagnosis, if understood. But they do more; they cause the symptoms that form the composite clinical picture. I am impressed with the clinical aspect of Livingston's grouping of these clinical pictures: "the shock group, the inflammatory group and the colic group." A sudden onset, continuous pain, extensive muscle spasm, varying degrees of shock, subnormal temperature, a high cell count, a grave prognosis and a need for immediate surgical intervention is his picture of the shock group. The inflammatory group has a more gradual onset, an aching pain, low grade muscle spasm, a febrile course, high cell count, a better prognosis and a more leisurely surgical approach. The colic group presents a periodic pain, little or no muscle spasm, normal temperature, normal cell count, a variable prognosis and a treatment problem equally as variable.

Visceral Neuralgia.—The segmental pains are the areas of hyperesthesia in the skin referred to as Head's zones of referred pain (due to visceral disease). They find their explanation in abnormal irritation of the centripetally conducting sympathetic neurons, which terminating upon the ganglion cells in the spinal ganglia so irritate the peripheral cerebrospinal sensory neuron as to give rise to the sensations referred to the source whence these neurons normally gather impressions, i. e., in the skin.

Violent neuralgic pains are sometimes felt in the internal organs when they are diseased or when the nervous system is diseased, as for example, the gastric crises of cerebrospinal syphilis.

Pyrosis.—Heartburn is a form of sensory disturbance and may be considered under the heading of pain. When it is present it is usually experienced as a burning sensation in the epigastrium or the lower end of the esophagus. When accompanied by the regurgitation of an acid fluid, it is experienced in the pharynx or mouth. It is generally an accompaniment of hyperchlorhydria, either with or without an ulcer. There are some cases, however, of hyper-

chlorhydria where heartburn is entirely absent. Such a pain may also be produced by the regurgitation of biliary content, the use of tobacco, acidulated drinks; dietary indiscretions may either produce or aggravate this symptom. Pregnancy is very frequently associated with heartburn.

Embryonic Defects.—Embryonic defects are more common in the mid-line of the body than elsewhere. It is here one finds umbilical and epigastric herniations or a persistent Meckel's diverticulum. It is believed that epigastric hernias are frequently overlooked. They are of congenital origin, vary in size and are found within three inches of the umbilicus usually. The contents vary from a small mass of subperitoneal fat to a peritoneal sac containing gut. The symptoms vary, but pain is common; it may be of a dragging nature or a sharp, well defined pain. A diagnosis of peptic ulcer is the most frequent error.

Variation in Pain Sense of different intra-abdominal Structures.—The rectum is the most highly sensitive portion of the gastrointestinal tract, while the stomach at the other end is more sensitive than the intestine. Pottenger defines visceral pain as "a pain caused by stimuli arising in an internal viscus which is referred and felt in the areas supplied by skeletal sensory nerves. The referred pain from the viscera is produced by transference of the sensory impulse from the sympathetic sensory to the spinal sensory neurons and from the vagus sensory neurons to the sensory neurons of the 5th cranial nerve. The abdominal wall is supplied with sensory nerves from the lower six thoracic spinal segments; stomach and small gut, ascending and transverse colon by 5th to 12th thoracic and 1st to 3rd lumbar segments.

Referred Visceral Pain.—The referred nature of visceral pain is explained by Head as the basis of viscera not possessing epicritic sensibility, for when a structure is once so endowed, pain is no longer referred.

Hyperalgesia of the skin commonly occurs in visceral disease. Head laid down the following rule in a determination of the location of visceral pain:

> "When a painful stimulus is applied to a part of low sensibility in close central connection with a part of much greater sensibility the pain produced is felt in the part of higher sensibility."

Then says Pottenger, "that the internal viscera are less sensitive than the skin areas supplied by sensory nerve cells . . . would account for the pain being felt in the more sensitive nerves of the skin."

Recurring Pain from Visceral Disease.—A very annoying evidence of chronic visceral disease is recurring pain in the absence of activation of the visceral disease. Nerve fatigue or depressive mental states may induce such recurring pain and the nerves conveying these viscerosensory impulses may become markedly hypersensitive. Mackenzie recognized this phenomenon and called it a "persistent hyper-irritability of the nerve cells." It may be explained by the assumption that the threshold of response for nerve cells to a given stimulus can be lowered so that a lesser cause comes to constitute an adequate stimulus.

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WHY HISTORIES?

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Are they to make an impression on the patient?

Are they to correlate the subjective, objective and clinical findings for a diagnosis?

Are they to recall incidents of a patient's visit in case of malpractice suits?

No doubt the answer is the same as it would be to the question: Are preliminary precautions necessary in any big undertaking?

Would a professional builder commence construction of a building without plans and blue prints?

The idea "Why Histories," came to me, after visiting offices and schools at home and abroad. In one place a small blank card served for a history, in another, several sheets covered with printed matter were required, and in different localities degrees of these two extremes suited the purpose. The question naturally arises, what is the best form?

It is doubtful if a clear comprehensive history can be secured by a paid assistant, checking a plus and minus sign, or a yes or no after questions on the stereotyped page record.

Isn't the knowledge of a clinician necessary to bring out questions of importance? Each case is different, and there are symptoms to be enlarged upon by trained intelligence. Without this experience the record is incomplete. A real clinician will lead the patient to tell his story in his own words, which under expert direction, becomes a valuable history, essential data that is forerunner of a good diagnosis.

Since case histories play a valuable role in forming diagnosis, why do not Medical Schools include a curriculum in this branch?

The well trained physician of today, who has had his postgraduate work in a first class institution, has developed the fundamentals of good histories and has been taught to separate valuable from worthless information.

The art of selecting the important will make diagnosis of a difficult case a clear and easy process. The alert questioner is master of presenting queries and knows how to speak the language of the person addressed, be he child

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or adult. Tact is a big element in history taking; to be gentle; sympathetic and never ruthless; the patient, at ease, is willing to converse regarding his ailment, with no concealing of vital points, and if he uses incorrect terms in explaining symptoms, the Doctor is on guard against such misinformation.

Confusion regarding history records can be understood, when one office employs a chart the size of a postal card and another, a folder resembling a railroad time table, whereas both Doctors are of equal rank in the medical profession. What is the answer?

To procure the reaction of men throughout the country, I mailed a questionnaire. Following are a few of the responses:

Dr. Joseph C. Beck, Chicago, Ill.: "I place about 75% value in any case on the diagnosis and treatment. Secondly, yes, I use a special form. For the past twenty years I have used the booklet system with a follow up from day to day under a date capition, using red ink for laboratory and x-ray findings. If this type of history proves to be the most favored one, I expect to collect my premium."

Dr. Wells P. Eagleton, Newark, N. J.: "We attach the greatest importance to a proper history. A history of all cases is taken by a Secretary, who is well qualified by long training to take them. When the case is admitted to the hospital, this is repeated. It is a neurological history taken chronologically according to appearances of the symptoms. I devised a chart for the taking of these histories and introduced it in two hospitals where it has been adopted."

Dr. Arthur W. Proetz, St. Louis, Mo.: "It is my feeling that histories should be as complete as possible and that they should not be hampered or be directed into routine channels by printing routine items all over the sheet. To me, the art of medicine lies in the skill which a man may develop in extracting the necessary information from the patient in arriving at a diagnosis, and a questionnaire has the tendency to reduce this to a mere rote. A long time ago I used a history covered with a great many words which could merely be checked to designate findings, but gave it up."

Dr. Samuel Kopetzky, New York City, N. Y.: "I use no form in taking histories. I let the patient tell his story and then I ask questions to bring out the entire facts. I think histories are very important. I do not favor a history chart, because it is impossible to anticipate the lines along which inquiry will go."

Dr. Ellison L. Ross, Waukegan, Ill.: "Of course, I do not believe history taking can be overdone. Some point of histories may be the key to the diagnosis and treatment. However, I do not believe that it is practical for a man who must see a considerable number of patients daily to keep a detailed record of every history. For myself, I record very briefly the parts of the history immediately relevant to the complaint of the patient. The conditions are rather different when one is dealing with a very complex and serious case or when one is dealing with a class of practice which is capable and is willing to pay for everything that will contribute to its present and future improvement. Under these circumstances a detailed history should be recorded."

Dr. Harris P. Mosher, Boston, Mass.: "The longer I practice medicine, the more importance I place on a thorough history."

Dr. Horace Newhart, Minneapolis, Minn.: "We regard histories of the greatest importance in Otological, Rhinological and Laryngological cases goth in connection with chronic cases of hearing deficiency and in connection with complications of inflammatory diseases of the middle ear."

Dr. Ralph Almour, New York City, N. Y.: "I attach a great deal of importance to the history obtained from the patient, and I go into the minutest details. For this reason I do not use any special form of questionnaire. I have no fixed history chart. My histories are taken by myself, in person, and written down on a pad which is then transcribed by my secretary onto an ordinary typewritten index card."

Dr. Ralph A. Fenton, Portland, Oregon: "I consider taking of accurate histories very valuable in our work, and hand you herewith copies of the small forms which we have devised to make quick records possible. These are contained in an account folder, thus facilitating the storage of records."

Dr. Francis L. Lederer, Chicago, Ill.: "Needless to say, a history both from the standpoint of study and record is the most important part of a case. I feel that the personalized history is of the utmost value in the interpretation of the findings and in the diagnosis of a case. I mean by 'personalized,' the history that is recorded by the examining physician. It should be brief but pointed."

Dr. Samuel Iglauer, Cincinnati, Ohio: "I attach great importance to the history of the patient. The history is of special importance in eliciting hereditary diseases, allergic tendencies and a record of previous operations. In pulmonary disorders a standard question (usually omitted) should deal with the aspiration of foreign bodies. I do not use a special form of questionaire."

Dr. J. R. Lindsay, University of Chicago: "We do not use any special form of questionnaire. The histories on new patients and patients referred from other departments are taken by a resident staff member, who also makes the preliminary examination, after which the case is seen by a staff member who checks the history and examines. The training which the resident staff receives in history taking is therefore directed from the supervising staff member, rather than according to routine questionnaire. Regarding the importance of a good history taking in the specialty, I think one can say that a good history is of about the same importance in the special field as in general medicine and surgery. I have considered the advisability of using a questionnaire as a means of making sure that one would have all the information which one might want when later reviewing a group of histories, but decided to use the simpled type of chart instead and

rely more on close supervision in order to get good records."

Dr. H. I. Lilly, Mayo Clinic, Rochester, Minn.: "In regard to your inquiry I will say that I consider the history of an ear, nose and throat patient many times of far more value than anything that the objective examination might reveal. Here at the clinic, we have discarded the form type of history sheet because for one thing, it leads to carelessness in history taking and there is no form so comprehensive that it will include all the necessary details of the various conditions. As part of the training of the fellowship men, I insist upon them taking a good history. They are checked over carefully in this regard for a long time. Throughout the ear, nose and throat world, I think it is quite obvious that not enough attention is paid to careful history taking. This is one of my favorite 'sore spots.' In general medicine much depends upon the history and as I said above, I feel certain that in many ear, nose and throat conditions the history is far more important than the objective findings and that point cannot be too strongly emphasized."

The answer to "Why Histories" is well emphasized by these responses, and to the writers thereof, I wish to express my sincere thanks.

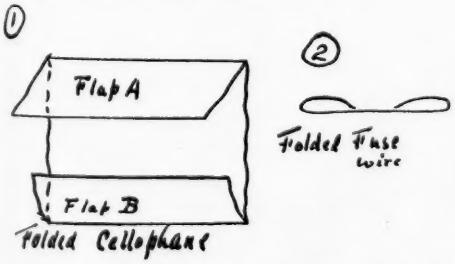
CELLOPHANE IN OPTHALMOLOGY

RALPH H. WOODS, M. D., F. A. C. S.

LA SALLE, ILL.

Each industrial community presents its own problems and each plant in that community has its individual considerations.

Those plants attempting to score in "no lost time" accidents fall in a category by themselves. Fortunately in our community most of these employees are young or middle aged and are accepted only after a close physical examination, and therefore trivial eye injuries heal with little difficulty and no complications.

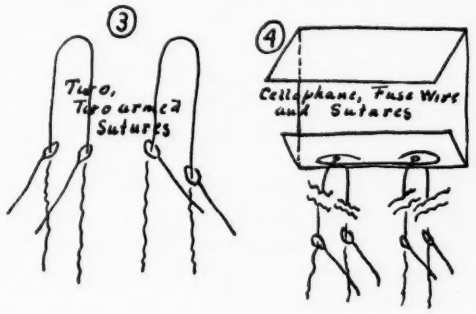


Recently a magnate case went through with no loss of time and no visual loss. Paradoxical but true.

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, at Peoria, May 19, 1937.

Because of their outdoor life and well living, railroaders lose little or no time from eye injuries.

Cement workers, before the institution of preventative measures, received many eye injuries



from hot cement in the sacking departments. There are still a few. While hot cement may denude the whole surface of the cornea, because it is sterile and not intensely corrosive, the wound heals rapidly without adhesions, loss of vision or loss of time. They may be quite painful for 24 hours. Butyn ointment solves this difficulty.

Molten zinc and type metal occasionally splash into the culdesac and may form a cast of the area contacted but because of its properties of quick cooling usually offers no adhesions and no complications unless the cornea is involved.

In our community zinc burns are an item of the past through the wholehearted diligence of the walking delegates. The plants are practically down and out.

Chemical burns, acid, lye and lime are the types that present the greatest complications and around which the closing paragraphs of this monograph are written.

Western Clock workers receive many foreign bodies on the cornea but they report even the most trivial injuries early and receive immediate inspection and treatment by an experienced oculist and because of this precaution there has not been a lost time accident or visual loss for some years in that plant employing 2,000 workers.

The Plow and Wheel workers while not entering any "no lost time" contests have been remarkably free from visual loss despite the frequency of eye injuries. This, in my opinion, is attributed, in part, to the fact that the plant surgeon, like the plant surgeons of the clock factory, zinc plants and mine, recognize their

limitations and refuse to even touch an eye. This policy has conserved vision and saved much money.

It is very evident that the eight hour working day has cut down visual losses materially because the shop and mine workers are enabled to absorb *more sunlight and build up a better resistance.*

Corneal ulcers from a traumatic source are *those cases who failed to report for two or three* days or those who were treated for a few days by an untrained person or one not skilled in ophthalmology.

The first twenty-four hours following an eye injury, no matter how trivial, is the most important period of treatment. The time to treat *a corneal ulcer is before it starts. Corneal ulcers* in industry cost big money.

Coal miners with eye injuries are the ones offering us our greatest worry. So many of them are old men who have worked down below 12 to 14 hours a day for years. Housing, manner of living, habits and previous diseases enter into the etiological picture.

There was a time when eye injuries from our coal mines cost more in compensation than all other injuries combined. There were two reasons for it, one was that the injured man failed to report early and secondly the lowered *resistance* of the individuals.

In the last two years every miner has been practically forced to report any injury as soon *as he comes up and every mine eye injury,* no matter how trivial, is sent to an experienced oculist who has orders to hospitalize without delay. Systemic as well as local treatment is instituted.

Nearly all eye conditions are merely symptoms of some constitutional derangement and by the *same token any eye injury will of necessity be* influenced by systemic abnormalities. Using this *premise the following standing hospital orders* were adopted and it is gratifying to note that visual losses and hospital bills of mine cases have been materially reduced in the last three years.

R. H. Woods, M. D.
La Salle, Ilinois:
Name of Employer ..... Check No. .....
Name of injured ..... Address .....
Age ..... Date of injury .....
Date of first treatment .....
Injury:

Fig. 1. Cellophane stitched in cul-de-sac.

Fig. 2. Protectant in neisserian

Treatment:
Hospital Orders:
Laboratory:
Smear and Culture.
White and Red Count.
Urinary.
Wassermann or Kahn.
General:
Bath, Bed, Catharsis.
Codliver Oil t.i.d. (palatable).
Body exposure to Quartz, daily.
High caloric tray.
Aspirin 5 gr. q 4 hrs. with Soda Bicarb.
10 c.c. Steril milk each 2nd day.
Local:
Hot Boric compresses, 1 hr. on, 1 hr. off, for 48 hrs.
25% Argyrol—followed by Boric wash.
¼% Zinc Sulph. Sol. q 2 hrs.
Atropine 2%, with caution.
See subsequent orders.

Signed .....

In lime, acid and alkali burns of the conjunctiva the success or failure of any treatment depends on keeping the surface of the globe and the lid separated.

Egg white coagulated by boiling (the membrane lining the shell of an egg) placed between the lid and the globe has been in vogue a long time. To be kept in place it must of necessity be stitched. This membrane is so friable one has some difficulty in handling and being a protein it may become a nidus for bacterial invasion.

Cellophane is constantly at hand. A piece removed from a cigarette package or a cigar wrapper, run through alcohol, washed in sterile water and cut to the desired size is all the preparation necessary. It is folded like the upper and lower flaps of an envelope. In placing in the culdesac the lower flap is towards the lid to avoid the raw edge contacting the cornea. The upper flap will then project through the palpebral fissure and fold down over the lid border.

A small spool of fine fuse wire (secured from any electrical house) should be constantly in one's surgical equipment. A piece of this wire is cut twice as long as needed, then the two ends folded inward to meet at the middle. This leaves no raw ends exposed.

Two, two armed silk sutures, not larger than No. 1, having been made ready, the fuse wire is placed in the lower fold of the cellophane and one arm of each suture passed through the cellophone over the fuse wire. Both arms of each suture are then passed through the lowest point of the culdesac to come out on the cheek, pulling the cellophane protectant in the desired place between the lid and globe. The sutures are threaded through two small buttons and loosely tied.

Inspection and cleansing are done daily without fear of disturbing the protectant. In five to seven days the surfaces are epithelized sufficiently to allow removal of the cellophane.

These eyes do better when not under bandage. It is therefore better even in corneal involvement to use only a light cotton pad, changed frequently. When the cornea is healed, leave the dressing off altogether.

No particular explanation is needed in the use of cellophane to protect the well eye in Neiserian infection. A cellophane cigarette wrapper is cut to size, half inch adhesive tape seals all but the temporal side. The photograph is completely explanatory.

This idea has been used several times in allergic folliculitis by sealing the eye or eyes on all sides to exclude outside air with fairly good success. One case was vernal catarrh.

Cellophane is also ideal in intranasal dressings following a submucous resection.

HEART DISEASE AND PREGNANCY

GERTRUDE ENGBRING, B.S., M.D.
DON C. SUTTON, M.D.
CHICAGO

The medical profession has long been concerned with the relations of heart disease and pregnancy. The complication is acknowledged; management still introduces the age old split into two camps, the conservative and the radical. Discussion of prognosis reveals optimistic reports of the last decade replacing the earlier pessimistic views, although nearly 30 years ago Osler[1] wrote: "Women bear valve lesions as a rule better than men, owing partly to the fact that they live quieter lives, partly to the less common involvement of the coronary arteries and to the greater frequency of the mitral lesion. Pregnancy and parturition are disturbing factors but are less serious than some writers would have us believe."

This paper is not based upon any controversial theory. It is a clinical study the material of which originates from the Pre-natal Cardiac Clinic, a division of the cardiac outpatient department of the Cook County Hospital,

Read before Section on Medicine, Illinois State Medical Society, May 18, 1937, Peoria.

Chicago. The period of time covered is one decade, July, 1926 to July, 1936. During these ten years 26,225 cases were admitted to the Pre-natal Clinics, of whom 1,400 were referred for special heart examinations. These cases were referred by the residents and attending men of the obstetrical department, one of the obstetrical staff, Dr. James E. Fitzgerald, being the chief of the Pre-natal Cardiac Clinic.

In 1934 Dr. Fitzgerald[2] reported a selected group of 126 cases of severe heart disease from this clinic. His paper stressed the obstetrical management and the results obtained. The present communication deals with the group as a consecutive whole and as such mirrors in a magnified scale the problems presented the individual doctor confronted by actual or possible heart disease complicated by pregnancy.

The group with which we are dealing is a fairly large one. Of the 26,225 cases, 11,670 or a little more than 44%, were white, and 14,554, or a little more than 55% were colored. Only about 5% of these cases, 1,400 in all, were referred to the Cardiac Clinic. It is worth noting that in these 1,400 referred cases the colored patients outnumbered the whites in the ratio of approximatey 2 to 1, although there was no such great disparity in the total whites and colored admitted to the Pre-natal Clinic.

TABLE 1

Total number of cases admitted to Cook County Hospital Pre-natal Clinic in Decade July 1, 1926 to 1936	26,225
White	11,670 or 44.6%
Colored	14,554 or 55.4%
Chinese	1
Total number of cases referred to Pre-natal Cardiac Clinic during the above decade	1,400
White	481 or 34.3%
Colored	881 or 62.9%
Chinese	1 or .071%
No record	37 or 2.6%

The length of observation varied from one visit to the whole ten years. Naturally, more cases rank in the shorter period of observation than in the longer. As a rough indication, 496 cases were observed for one year or more, and of these 112 were observed for a period of between 5 and 10 years. Our files are divided into active and inactive lists The inactive list, which includes cases discharged, transferred to private doctors or other clinics, and those that died or proved to be uncooperative, totalled 981 cases, as contrasted with 419 on the active list.

TABLE 2

Attendance record:	Active		Inactive	
	Number	Per cent.	Number	Per cent.
Once	66	13.36%	544	56.47%
6 months or less	139	33.17%	155	15.90%
1 year	42	10.02%	161	16.41%
2 years	31	7.39%	40	5.09%
3 years	31	7.39%	29	2.95%
4 years	25	5.96%	17	1.73%
5 years	22	5.25%	9	.91%
6 years	12	2.86%	6	.61%
7 years	17	4.05%	4	.40%
8 years	11	2.62%	1	.01%
9 years	7	1.67%	0	
10 years	7	1.67%	2	.02%
No period of time recorded	9	2.14%	4	.04%
Totals	419		981	

Ages of these 1,400 patients demonstrate vividly the predominance of youth in this, a charity practice. The ages are recorded in nearly 90% of the cases. One-fourth of the group is below the age of 20; the peak age coming at 18, 135 patients or 10% of all recorded. In the third decade the majority of births occur before the age of 25. Less than 2% occur over the age of 40.

TABLE 3

Ages of patients referred to the Pre-natal Cardiac Clinic.

Decade	Active	Inactive	Total	Percentages
Under 20 years	94	268	362	25.8%
20-30 years	202	443	645	46.2%
30-40 years	75	138	213	15.2%
40 years or over	13	13	26	1.8%
Age not given	35	119	154	11.0%
Totals	419	981	1,400	

Number of children varies from 1 to 12. The average is 2.45—the low figure probably being due to the number of primiparae in the clinic —460; i.e., almost one-third of the group.

TABLE 4

The complication of syphilis in the group was 7.15%—100 cases. These included the 1 and 2 plus as well as the 3 and 4 plus Kahn.

Number of Children	Number of Patients	Total number of children
1	460	460
2	247	494
3	158	474
4	85	340
5	57	285
6	33	198
7	26	182
8	8	64
9	7	63
10	1	10
12	3	36
	1 085	2,606
No record of children	315	
	1,400	

Average number of children 2.4.

TABLE 5

Number of Positive Kahns in Active Group			26
(I and II	11	III and IV	15)
Number of Positive Kahns in Inactive Group			74
			100
(I and II	38	III and IV	36)

These data supply us with a sort of picture of the type of patient referred to the Pre-natal Cardiac Clinic; a group of women mostly young, twice as many negroes as white; averaging 2.5 children each; exhibiting a generally low coincidence of syphilis.

Not all of the 1,400 cases, when referred, were considered actual heart cases but evidence either in symptoms or physical findings were present to a degree sufficient to raise the question: Are we dealing with an organic or a functional lesion?

The reasons for referring were a positive history, either rheumatic or syphilitic; symptoms of possible or probable heart disease such as dyspnea, edema, chest pain, heart consciousness—physical findings of typical lesions, especially the rheumatic, murmurs, arhythmia, fever, or clinical signs of hyperthyroidism. It was recognized that in the later months, the 7th to 9th of pregnancy, the appearance of symptoms of possible heart disease would excite no especial consideration. However, the majority of admissions to the pre-natal clinic are about the 3rd months of pregnancy when the appearance of the above can scarcely be attributed to the mechanical factors acceptably present in the last trimester.

Of the 1400 cases referred to the Pre-natal Cardiac Clinic:

301 were classed as definite organic hearts.....21.6%
230 were discharged upon first visit as normal hearts 16.2%
520 were retained and followed because of systolic murmurs, in many instances complicated by arhythmias or consistent fever.....37.2%
349 as a miscellaneous group, accounted for by symptoms, arhythmias without murmurs, "fits and faints," etc.....25.0%

Reviewing a group of 822 cases admitted during a five year period, Hamilton and Kellogg noted a 25% incidence of true cardiac disease. In our 1400 cases we find 21.6%.

Classifying these hearts upon an etiological basis we found a total of 247 cases or 82% of rheumatic heart disease, versus a total of 54 or 18% of all the other groups combined. This preponderance is explained by a well known fact concerning rheumatic heart disease; they are the young hearts; ours is a clinic of young persons.

Before investigating this group in detail it may be expedient to discuss the use of the term mitral heart disease. The initial anatomical lesion in the developing mitral heart is a regurgitation. Especially White and his co-workers have shown that a period of approximately two years is required for the establishment of a stenosis.

TABLE 6

Total number of cases of Organic Heart Disease in 1,400 cases referred—301.

Mitral Heart Disease	226	75.08%	.....
	...	.....	82.06%
Combined Mitral and Aortic	21	6.98%	.....
Thyroid Heart Disease	27	.....	8.97%
Arteriosclerotic Heart Disease	14	.....	4.65%
Syphilitic Heart Disease	12	.....	4.32%
Congenital Heart Disease	1	.....	.33%

We believe, certainly for clinical purposes, that the stenotic lesion is the preponderant one and do not use the diagnosis mitral regurgitation. The term "mitral heart disease" includes both insufficiency and stenosis and as such is identical with the expression "double mitral." Where complications such as hypertension, severe anemia, the mechanical effects of an adhesive pericarditis intervene to affect the left ventricle then the factor of regurgitation may become prominent. So that at the beginning and at the end insufficiency plays a part. With all our stressing of the site and type of the lesion it is well to hold to the concept that the cause of decompensation and ultimate death is a process, not a thing.

In reviewing the characteristics of this group of 247 cases of rheumatic heart disease the following points are of interest. A positive history of rheumatic infection was obtained in 32% of the total 247 cases, rheumatic fever, as usual, leading the list. The ages in which infection occurred ranged from 4 to 20 years. In the active group where an intensive follow up on the question was possible the incidence was 42.4%, contrasted to the inactive group where the question put upon admission but not reiterated gave but a 20.3%. This is an example of how statistics may distort the facts.

TABLE 7

60 had rheumatic fever in childhood and early youth	24.63%
5 had chorea	2.02%
2 had chorea and rheumatic fever	.08%
1 had rheumatic fever and scarlet fever	.04%
6 had tonsilitis and frequent sore throats	2.40%
7 had scarlet fever with questionable rheumatic fever	2.83%
Total	32.00%

A point in reference to the racial and environmental factor may be worthy of comment. The majority of severe lesions are found in the white patient; bearing on this may be the fact that the infection occurs at an earlier age and recurrences are more common in the white than in the colored. Many of the latter spent their early childhood in the south rather than in the Chicago area. This may partly explain the difference. The living conditions and economic states of the white patient is in general superior to that of the colored.

The association of thyreotoxicosis with rheumatic heart disease, though reported as frequent as 9.5% in Maher's[3] review of heart disease in the Chicago area, occurred in eight cases or 3.2%. Again this may be explained by the young age of our average patient, since thyreotoxicosis elects the middle of the third decade as its optimum time of appearance.

Hypertension likewise is an infrequent complication, met with in but four cases. The high systolic pressure in the combined case where the aortic insufficiency is predominant is taken for granted as part of the lesion.

Syphilis was encountered in nine cases, two of which were combined lesions.

Fever of a low grade type, a consistent 99.6 to 100.4 occurred in 30 or 12.1% of cases. The sixteen cases in the active list were followed for an average period of 5½ years. The average age of the patient was 24½ years. With the exception of 2 cases considered as active rheumatic infections and 1 case of an unexplained secondary anemia, and 1 case, observed two years in which one focus of infection succeeded another, the remaining 26 cases presented no obvious reason for an elevated temperature. After showing a fever for months these cases presented neither the findings of a progressive valvular involvement nor the clinical evidence of a superimposed subacute bacterial endocarditis.

Auricular fibrillation beginning in pregnancy was encountered in two cases in this series. One, 25 years old, severe mitral heart disease, a para II, Grav. III, the second a para III aged 40 years; pregnant after an interval of 12 years; successfully delivered her 4th child after a 6 weeks pre-partum succeeded by a 6 weeks post-partum hospitalization. We have followed two cases who have had auricular fibrillation over four years. One beginning at 19 in a Para I; the other with onset at 40 years a Para VII. The latter has been chronically decompensated for 2 years, the past year bed-fast; the younger patient has had 3 decompensations with fairly rapid recoveries, is now doing her own housework and contrary to advice, has held a position during this past year requiring six hours of office work.

Five of the auricular fibrillations are dead within one year after onset. The ages of the above were 18-40-27-39-28. The first case ran a clinical course of a subacute bacterial endocarditis; the 39 year old patient, died suddenly with clinical symptoms of a cerebral accident; the remaining three presented the usual picture of decompensation.

In contrast to the rheumatic hearts the group of 14 cases of arteriosclerotic heart disease with hypertension included the relatively older patients. The average age on entrance to the clinic was 31.4 years. The high incidence of the colored, 12 against the 2 white patients, indicates the tendency of that race to hypertension under northern environment. The lowest blood pressure was 160/120, the highest 245/140. The absence of syphilis in the group is noteworthy. No history of infection and no positive serology was obtained in any case. The average number of children is four. There has been one death in this group, a colored patient aged 44 with an average blood pressure of 220/120.

The cardio-vascular syphilitics presenting the lesions of an aortitis in seven cases and an aortic regurgitation in five, were interesting, especially from the age viewpoint. The average age was 24; the mean number of children was 1.3; all had 4 plus Kahns when first coming under observation, except two who had received previous therapy still had a 1 and 2 plus. There has been one death in this group following a cholecystectomy.

Twenty-six cases of thyreotoxic heart were seen. Of these patients 17 were white and 9 colored. As in previous groups the early age incidence is worthy of comment. According to decades:

2 below the age of 20
19 between 20 and 30
5 between 30 and 33

The main symptoms of this group were tachycardia, palpitation, heart consciousness,

sense of exhaustion. In physical findings the high pulse pressure, low grade fever—90 to 100, palpable gland, frequent praecordial thrills and occasional premature systoles were noted. Since pregnancy itself increases the basal metabolic rate 15 to 25%, not too much stress was placed on elevation of rate alone. Our cases varied from a plus 5% to a plus 60%; the latter a colored primipara of 21 under antisyphilitic treatment—who delivered successfully but failed to report post-partum.

None of our cases developed in auricular fibrillation or became decompensated. Three cases who retained a plus 35% to a plus 47% B.M.R. and two cases associated with rheumatic heart disease were operated on postpartum.

Beside the organic hearts we are confronted by an interesting class presenting the elusive ambiguous symptom and finding characteristic of the possible cardiac.

The table given below presents the data of a sub-group whose common denominator is the presence, during pregnancy, of a definite often harsh systolic murmur.

Our incidence is 37.1%; 520 cases in a total of 1,400 patients. Of the associated arhythmias a reduplication of the second sound was found most frequently; premature contractions and consistent tachycardia occurred in an equal number. The large number of cases—104—showing an occasional to a consistent fever of 99.4 to 100 is a percentage of 20 versus 12% found in definite rheumatic heart disease.

TABLE 8

Total number of cases	1,400
Total number of systolic murmurs	520 or 37.1%
Total premature contractions	30
Total with reduplication of the 2nd sound	81
Total with temperature	104
Total with tachycardia	28

Occurring as a temporary finding only during pregnancy, explanation of the above findings, systolic murmur, mild arhythmias, tachycardia, is readily made upon the physiological changes occurring during gestation—the upward displacement of diaphragm, the increased blood volume and flow, placental circulation, the increased body bulk, the increased metabolic demands. Most authors report that these signs disappear immediately postpartum, but we find that they persist in the majority of our cases. Approximately 25% disappear—and 25% the murmur though remaining, diminished appreciably and the arhythmia became intermittent. Continued observation, with recourse in the exceptional case to laboratory examination, x-ray and electrocardiogram, has emphasized the importance of the following points in distinguishing the mild rheumatic from the innocent systolic murmurs and the purely functional heart. These criteria are; the percussion findings of straight left border; not necessarily an enlarged heart, a prominent pulmonary conus, an accentuated apical first sound, and an accentuation however slight of the second pulmonic. On the basis of these criteria we have transferred 32 cases into the mild, well compensated, mitral class. Another decade of observation, bringing these hearts into the 35-45 age decade will verify what may be today's assumption.

As a summary of these data, we find that of the 1,400 cases referred to the Pre-natal Cardiac Clinic, one in every eight was discharged at once as normal, rather more than one in every five suffered from definite organic lesions, chiefly rheumatic in character, and nearly two in every five had systolic murmurs, often accompanied with arhythmias or low fevers. Most of the rheumatic hearts were of young women, not much affected by hypertension, thyreotoxicosis or syphilitic infection. Naturally, the management of these cases varied with the conditions presented.

The care of the functional and questionable heart case includes a calming re-assurance assisted by mild sedatives. During pregnancy we think it wise to encourage frequent consultation because in the nervous type of patient this alone is therapy.

The management of real heart disease in pregnancy is a combined medical and obstetrical problem. Here, as in all cardiac care, prevention of heart failure is the aim. Three basic requirements in a program of prevention are: frequent observation of the patient, hospitalization or equal facilities for rest, and the recognition that the heart, not the pregnancy is to be treated.

In our experience the best test of cardiac function is the reaction of the circulation to the patient's usual activities. More important than the lesion is the myocardial reserve.

Fatigue is the earliest warning signal; dyspnea upon exertion, the use of two or more pillows, an increasing pulse rate, a slight cough, were con-

sidered significant of myocardial embarrassment and as such provided absolute indication for rest, addition to the ten hour night and the two hour midday rest period insisted upon as routine. If symptoms continued or warnings of more serious impending difficulties were observed, the patient was sent in to the ward. It has been said heart disease should be a rich man's disease—from the viewpoint of forgetting expense, as far as hospitalization costs were concerned—our patients fared as well as any wealthy patient. To this immediate rest, often not more than a week or ten days, and to the pre-delivery hospitalization which in one-third of our patients was made 3 to 24 days ante-partum, we attribute the main credit for our satisfactory results.

In medication the usual indications for digitalis, sedatives, Lugol's solution were followed.

During labor the routine sedative used was morphine grain ¼ and scopolamine grain 1/150 hypodermically. This was given to primaparas as soon as a 3 cm. dilatation occurred, and to multiparas when labor had definitely begun. All operative procedures were performed under ether anesthesia. No cesarean section was done on account of heart disease. Obstetrical complications alone dictated delivery by the abdominal rather than the vaginal route. One cesarean section has been performed for the purpose of sterilization.

Under this management there has been one death. This case was a Gravida II successfully delivered of her first baby, who had a bag induction at term and died six weeks postpartum. Autopsy revealed a malignant endocarditis.

In contrast, during the same period of time, 24 cases under no pre-natal supervision and admitted directly to the ward died. Of these 6 died undelivered and 18 died 10 hours to 11 days postpartum. Pre-natal care would have had no magical effect in preventing death in at least two of these cases; one a 26 year old white woman with a ruptured aneurysm—the other an extreme case where autopsy disclosed a foreign body in the heart—a piece of glass 1x3 inches in size.

In the last decade the observations of Daly, Hamilton and Kellogg, Nelson and Eades, and Reid uniformly support the conservatively optimistic outlook. Reid[4] expresses an opinion which is worthy of repetition, including as it does the answer to the question, "Does pregnancy shorten the life of the cardiac?" Reid says, "Patients with rheumatic heart disease die before their time, not because of pregnancy and parturition, but because of the natural evolution of the disease."

TABLE 8

Deaths: C.C.H. Obstetrical Service Decade July 1, 1926, to July 1, 1936.

Admitted directly to ward.
No pre-natal care 24
6 died undelivered.
18 died 10 hours to 11 days post-partum.

Admitted through Pre-natal Clinic 1
Autopsy: Malignant endocarditis.

Thirty-five to forty, indeed, is the critical age in any rheumatic heart beginning in childhood. But 95% of all births occur before the age of 40, and in a charity practice before the age of 35. Compiling birth statistics from two groups we found: In 1,000 consecutive births in Cook County Hospital from July to October, 1933, contrasted with 2,159 consecutive births in the Evanston General Hospital at Evanston, Illinois, the clientele of which comes from the exclusive north shore suburbs of Chicago, the most noteworthy difference was the 20.2% of the charity practice against the 2% of the private cases of births occurring before the age of 20. Over 40, the low incidence of less than 3% prevails in both groups.

TABLE 9

Cook County Hospital—1,000 cases—births from July 1, 1933, to October 1, 1933.

Youngest 14 years—Oldest 45 years.

Age	Number	Percentage
14-20	202	20.2%
20-30	571	57.1%
30-40	199	19.9%
40 or over	28	2.8%

Evanston General Hospital—2,159 consecutive births from November, 1931, to November, 1934.

Age	Number	Percentage
Under 20	40	1.85%
20-30	1,146	52.13%
30-40	642	39.00%
40-47	50	2.3%
Age not given	90	4.1%

The deaths in rheumatic heart disease—and we stress this because it represents the main group encountered in the consideration of heart disease and pregnancy—occur between 35 and 45.

Reviewing mitral heart disease in the general cardiac clinic at the County Hospital in a group of 118 women with no pregnancies, compared to 79 cases with pregnancy, we found the death rate

per decade to be higher in the single woman than in those who had borne children; the immediate rise after the age of 40 is conspicuous.

The evidence of these facts indicate two conclusions: Compensated cardiac disease is no contra-indication to marriage and child-bearing. Adequate pre-natal supervision, vaginal delivery in the absence of obstetrical indications, contributes definitely toward a favorable outcome.

TABLE 10

Mitral Heart Disease: Cook County Hospital—Cardiac Clinic. No Pregnancies.

Total cases—118. Deaths—20. Percentage of deaths—17%.

Decades	Act. Cases	Inact. Cases	Total	No. of Deaths	% of Deaths	% per Decade
20-30	31	19	50	5	10%	23.8%
30-40	20	11	31	5	16.1%	23.8%
40-50	27	10	37	10	27%	47.6%

Pregnancies.

Total cases—79. Deaths—11. Percentage of deaths—14%

Decades	Act. Cases	Inact. Cases	Total	No. of Deaths	% of Deaths	% per Decade
20-30	6	4	10	1	10%	9.9%
30-40	16	13	29	3	10.3%	27.2%
40-50	25	15	40	7	17.7%	63.6%

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From the Cardiac Follow-up Clinic at Cook County Hospital, Chicago. Don C. Sutton, Professor of Medicine, Northwestern University Medical School, and Gertrude M. Engbring, Instructor in Medicine, Loyola University Medical School.

DISCUSSION

Dr. Don C. Sutton, Chicago: My interest in this subject has been that frequently in private practice we see cardiacs and non-cardiacs who have been advised not to marry and if they marry never to have children. I think the chief thing this study brings out is that even definite heart disease in a woman is not a contra-indication to either marriage or childbearing, and particularly so if those patients are taken care of properly. Out of this group only one-third are true cardiacs. Nevertheless, every one was referred to the cardiac clinic and they were referred for reasons that are generally used as evidence of heart disease. One-third of these patients have a systolic murmur and in this group of patients all other evidence of heart disease is absent. If you rely only on the presence of a murmur, you would call them organic heart disease. Every valvular lesion is accompanied by change in shape of the heart and usually in size of specific chambers of the heart.

The diagnosis of a vavular lesion should never rest upon the finding of a murmur only.

ACUTE INFECTIONS OF THE PHARYNX AND LARYNX

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A limited discussion of infections of the pharynx and larynx can refer only casually to some of the commoner acute infections of these regions. Therefore, my purpose is to dwell at as much length as possible on the severe infections.

The mild infections are simply mentioned to state that most of them are either the beginning of, or are associated with acute upper respiratory infections and run a definite course and subside without complications. They are usually prevalent in colder seasons, are sometimes epidemic and are best treated by rest in bed. Occasionally it is necessary to use antipyretics, sometimes the use of analgesic drugs is required, but rest and maintenance of body fluid balance is about all that is necessary. It has been said that a cold can be cured in one week by the use of drugs, sprays, etc., but that untreated it gets well in seven days. So far as local measures are concerned, I like to use a solution recommended to me by Dr. Gabriel Tucker. It is composed of 25% tincture guaiac, 25% tincture iodine and 50% tincture benzoin compound. This is painted on the surface of the inflamed area several times daily. Hot gargles are probably ineffective, but are used in the form of hot, five per cent solutions of bicarbonate of soda. Oil of pine, menthol, compound tincture of benzoin volatilized in steam and inhaled by the patient are distinctly pleasant and comforting. In acute laryngitis, instillations by indirect mirror guidance are helpful. I know of no better medicament for these than the solution of mono-p-chlorophenol recommended by Jackson. Astringents such as silver nitrate are contraindicated.

Epidemic Pharyngitis. Pseudomembranous infection of the pharynx, caused by the streptococcus or pneumococcus is frequently seen in epidemic form, often as a result of contaminated milk. I know of no specific treatment, other than supportive measures combined with local antiseptics and anodynes. The laboratory examination, of course, decides the diagnosis. If pneu-

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mococci, type one and two be present, then it is logical to use Felton's antipneumococcic serum with local applications of solutions of optochin.

Parapharyngeal Infections. Any reference to severe infections of the pharynx should contain some remarks about the fascial planes of the neck. You are familiar with these and time does not permit more than to say that I have always had the impression that every fascial sheath of the neck, except the superficial one, is potentially a funnel emptying into the mediastinal spaces. If that impression is kept in mind one realizes how important early and adequate drainage is to a successful outcome. However, I do not mean to state that many infections of the neck do not recover when treated conservatively; they often do. On the other hand the possibility of fatal complications is so great that surgical measures seem wise in every case. From a surgical standpoint, the pharyngomaxillary, or better, the parapharyngeal space is divided into two compartments—the anterior extending from the base of the skull, only to the level of the mandible angle—while the posterior extends to the thorax. The anterior contains only a few lymph glands and is a potential space, the posterior being the carotid sheath. The anterior compartment is in direct relation laterally to the pterygoid muscles. This is important from a diagnostic standpoint because of the associated trismus when the space is infected.

Infections of the space are usually tonsillar or pharyngeal in origin. They may complicate diseases of the nose, ear, parotid gland, cervical vertebrae and adenoids. They can follow penetration by an injection needle in tonsillectomy. There is a deficiency in the buccopharyngeal wall between the posterior edge of the mylohyoid muscle and the anterior edge of the middle constrictor muscle of the pharynx, through which this space can be drained into the mouth. One can reach the pharyngomaxillary fossa through this deficiency by a small incision in the floor of the mouth and extension of the incision by blunt dissection. Most of these abscesses are reached best by the external route. However, as Mosher has aptly stated, "All pathways lead to death, but none so surely as infections about the neck." All thought of cosmetic damage must be dismissed and drainage instituted thoroughly and early enough to prevent downward extension to the mediastinal spaces. Preliminary or prophylactic mediastinotomy seems somewhat drastic to me. Yet when mediastinatis seems a probable complication, this may be good surgery.

Ludwig's Angina. This is an infection of the floor of the mouth which may be caused by pharyngeal infection traveling forward through the deficiency mentioned heretofore, but it is usually due to infections about the molar teeth, the submaxillary and sublingual glands or secondary to an impacted salivary calculus. Infections in the mouth may cause pharyngeal infections through the same deficiency. They are best drained externally by wide incision and separation of the mylohyoid muscle. It is safe sometimes, however, to incise the mucous membrane of the oral floor and bluntly dissect to the abscess.

Retropharyngeal Abscess. One of the most serious infections of the pharynx is retropharyngeal abscess. In retrospect the average laryngologist probably considers retropharyngeal abscess as a disease easily diagnosed, which causes great discomfort but which is associated with only a moderate degree of alarming symptoms. The fact that most of these terminate easily and successfully when the abscess is drained accounts for this complacent attitude. Many years ago it was felt that this disease was always secondary to Pott's disease of the cervical vertebrae. Such is not the case, for the majority of cases do not show that etiology. They may be due to tuberculosis of the base of the skull or of the vertebrae. If in the midline one can be reasonably sure of an acute pyogenic abscess because the lymph nodes are only present in midline—if lateral, tuberculosis may be suspected. Acute pyogenic infection is rare after four to six years of age, because the retropharyngeal lymph nodes disappear after that age. They are usually due to infectious processes of the teeth, tonsils, middle ear, sinuses and nose. Often foreign bodies or injuries may cause them; they may be secondary to cervical adenitis, while most of them are like Topsy, "they just grow." The offending organism usually is the streptococcus, although any pyogenic organism may produce it. It is a disease carrying a rather high mortality, various authors gave the rate of death at from four to eight per cent. It is preceded by a varying period of illness not concerned with the disease itself and followed by a degree of dyspnea and dysphagia—depending upon its location. The higher the abscess, the greater the dysphagia,

the lower the location, the greater the dyspnea. Indeed, at times, the laryngeal aperture is almost occluded by the tumor or by an associated edema of the base of the tongue, the epiglottis and even of the endolaryngeal structures. It is essentially a disease of childhood and infancy. Cervical adenitis is always present and accounts for the characteristic poise of the head. Torticollis has been mistaken for it. I sometimes think that, given a child gravely ill and with the neck rigidly stiff and head inclined to one side, a diagnosis of some form of pharyngeal abscess can be made on these symptoms alone. X-ray should be used as a diagnostic measure. It will disclose not only an abscess, but the condition of the bone of the spine as well. One should be very circumspect in making drastic direct examinations. I have known a child to die promptly during palpation of the throat when this disease was present. Surgical drainage is the only rational treatment. However, it should not be instituted too early. Until the area has become circumscribed and fluctuant, danger of blood stream infection may be caused by too early incision. Anesthesia should not be used, yet in appropriate cases without much dyspnea, I see little objection to avertin. I place the patient in an exaggerated Rose position and prior to incision of the abscess, use a trocar to which is attached adequate suction. Following this the abscess is carefully and widely opened by blunt dissection. Little, if any, after care is required. If the x-ray discloses an associated tuberculosis of the spine, the drainage should be external. As pointed out by Salinger and others, there is grave danger of sudden death from hemorrhage in these deep abscesses of the pharynx, whether they be retropharyngeal, parapharyngeal or peritonsillar. Usually one is forewarned of this by repeated small hemorrhages. Statistics show that immediate ligation of the common carotid is the only treatment, despite the fact that a definite number of ligations are followed by serious brain complications. There is real danger of suffocation by aspiration of the abscess contents, unless scrupulous care is taken to prevent it during operation. Impending laryngeal obstruction calls for tracheotomy before incision and in any case of deep infection of the neck immediate availability of a tracheotomy set is required. Sudden death in these cases is usually unexplained, but may be due to pressure and manipulation against the pharyngeal wall, with vagus nerve inhibition—whatever that may be—therefore, manipulations should be carefully and gently made.

Laryngeal Stridor. Hoarseness and stridor call for immediate examination of the larynx. This is easily accomplished in the adult by indirect examination and that method is sometimes also possible in the child and infant. However, there can be no valid reason for inexact information regarding the condition of the endolaryngeal structures. I have often said that direct examination of the larynx is as easy if not an easier procedure than an opthalmoscopic examination. Anyone professing to be a laryngologist should be able quickly to expose the larynx in an infant or child and neither local nor general anesthesia is necessary. Having exposed these structures one may take direct swabs for laboratory examination and gain essential information as to the size of the glottic aperture. It is well to bear in mind the causes of stridor in children. They are:

1. Congenital laryngismus stridulus due to underdevelopment of the cartilaginous box—also known as atony of the larynx. This is the most frequent cause of stridor in infancy and can be diagnosed only by direct inspection.
2. Laryngismus stridulus or spasmophilia due to calcium deficiency.
3. Laryngitis stridulosa, false croup, acute catarrhal laryngitis.
4. Membranous laryngitis.
5. Foreign bodies.
6. Papillomata.
7. Congenital paralysis of recurrent nerves.
8. The possibility of thymic stridor. This so-called syndrome is rapidly being relegated to the museum of myths.

Membranous Non-Diphtheritic Laryngitis. I should like to call attention to a type of membranous non-diphtheritic laryngitis which in certain years seems to be epidemic. It is a descending infection which finally reaches the terminal bronchioles causing areas of atelectasis with eventual suffocation and which results in a terrific mortality rate. I know of no disease which so taxes the ingenuity of the physician, and which in its very inception seems to present a hopeless outlook. Truly these are ghastly cases. The disease can be recognized by the membrane and is differentiated from diphtheria by the peculiar

gluey, brownish, tenacious crust. Increasing stridor is always present and tracheotomy should be instituted early, before irreparable damage has been done to the heart. There is a peculiar pale cyanosis which is a definite indication for tracheotomy. Intubation has been recommended, but is not advised. Early tracheotomy is not a serious procedure and the mortality attributed to it is due in great part, to injudicious procrastination. For those not accustomed to this procedure, I will suggest a simple technique. With the head and neck in midline position the trachea can be located quickly and easily with a hypodermic syringe and a twenty gauge needle plunged into the midline. Immediately after the skin has been pierced the plunger of the syringe is slightly withdrawn and if a small amount of sterile water is in the syringe bubbles of air announce entrance into the trachea. The needle can be followed by dissection easily and quickly. A recent contribution by Chamberlin emphasized the use of the Mosher life saving tube. To those familiar with its use, I commend a small bronchoscope for the same purpose. After care of these little patients requires almost constant attendance of a trained physician. Death is always by suffocation due to the crusting of the exudate. These can be removed by suction through a catheter, following instillations of adrenalin; perborate solution has been advised to loosen them; bronchoscopy through the tracheal wound is frequently required to remove the crusts. If one can keep ahead of the crusts until the virulence of the streptococcus infection has subsided, a few of these cases will recover—but the outlook is most disheartening.

Peritonsillar Abscess. Peritonsillar abscess and its management are well worth consideration. I know of few conditions more distressing to the patient. Again, a period of judicious watchful waiting for abscess formation is worth while. Many advise early incision in the peritonsillar area, feeling that depletion caused by free bleeding is helpful and that sooner or later the abscess will drain into the tract of the incision. This has neither been my experience, nor practice. I always wait until I feel reasonably sure that the pocket can be entered. Practically painless incisions may be made in these cases if the sphenopalatine ganglion is anesthetized thoroughly. I called attention to this many years ago and Guttman has written in detail regarding the method. Peritonsillar abscess is a serious affair and when the process has subsided the tonsil should be removed completely to avoid recurrence. Usually a peritonsillar abscess forms above the tonsil in the soft palate, but occasionally will invade the structures posterior or lateral to the tonsil and it is these which are difficult to locate. A nick in the membrane immediately posterior to the tonsil, followed by blunt forcep search, will usually drain the cavity, or by dissection into the anterior compartment of the parapharyngeal space. These are usually parapharyngeal space infections.

Post Operative Infections. Infections of the pharynx following removal of adenoids and tonsils is a very rare complication. The wide open wound affords such good drainage and the excellent blood supply accounts for this fortunate rarity. I have seen several peritonsillar infections with abscess formation, following local anesthesia injection. An infection of the tissues about the base of the tongue following tonsillectomy may be alarming at times, but usually subsides without abscess.

Diphtheria — Vincent's Angina. Vincent's angina and diphtheria are mentioned to stress the importance of throat cultures. The presence of diphtheritic organisms calls for immediate use of adequate doses of diphtheria antitoxin. It should be remembered that the earlier it is used the more efficient is its action; investigations have shown that after the third day of the infection the serum has little if any effect. In Vincent's disease I have not been particularly impressed with the efficacy of antiluetic medication, either locally or intravenously, but I do rely almost entirely on oxygen producing drugs, such as perborate of soda and peroxide of hydrogen. A recent article by McNichols has called attention to the fact that peroxide of hydrogen gives the best result in the treatment of this disease. Meticulous cleansing of the teeth by a dentist is most important. Vincent's ulceration about the mouth and pharynx can, at times, be extremely grave.

Infectious Mononucleois: Better known as acute glandular fever, this disease occasionally has its inception in the throat and mouth as ulcerative lesions. Indeed, often a type of pyorrhea is present. The disease is diagnosed by generalized enlargement of the lymph glands,

particularly cervical, axillary and inguinal. The disease is accompanied by a slight fever. The diagnosis is easily made by blood smear, a preponderance of mononuclear cells being present. Treatment is unnecessary and the disease subsides in ten days to two weeks.

Agranulocytosis. One must always be on the lookout for throat manifestations of malignant neutropenia or agranulocytosis. In these cases I do not know, but I doubt, if the lesions described in the literature as typical of this disease and as initial are the cause. I am inclined to feel that they are merely secondary infections due to lowered resistance. It has been said that the typical lesion is a small ulcer on the anterior palate. Some of the cases I have seen presented ulceration about the teeth and oral mucous membrane. Others have shown a general dusky redness of the fauces with a tendency to pendulous edema, even extending into the larynx and finally calling for tracheotomy. A blood count quickly decides the diagnosis, but what next to do taxes the resources of internist and laryngologist. I have known of one case to recover after the use of pentnucleotide and another with the use of yellow bone marrow. If the blood count discloses the presence of many immature granular cells it is said that pentnucleotide assists in further release of these cells; however, if there is an aplasia of these cells and no immature cells are present, it seems that yellow bone marrow gives better results, since it is supposed to stimulate the production of these cells. If drugs containing the benzine ring cause the disease, perhaps our new friend allergy comes into the picture; certainly many individuals can ingest large quantities of these drugs and not develop agranulocytosis.

Abscess of Larynx. Abscess of the larynx is seen following debilitating diseases and at the time when typhoid fever was prevalent it was not uncommon. It has followed the use of radium and excessive x-ray therapy. It may be diagnosed by indirect examination, palpation through the mouth and sometimes fluctuation may be felt over the cartilage. Exploration with a needle has been suggested. If the abscess point is in the pyriform sinus or in the ventricular band, it may be drained by indirect procedure or through direct laryngoscopy. If, however, it has traveled downward and the cartilages are involved it must be drained externally.

Finally, I would emphasize the importance of general medical care, supportive measures and nursing. Relief of pain is of utmost importance and local measures failing, morphine should be freely used. Patients with pharyngeal and laryngeal infections are more comfortable in moist atmospheres. Haslinger has stressed the use of steam saturated with bicarbonate of soda. A prescription containing anesthesine is often quite worth while. This is placed on the tongue in dry form and allowed to dissolve. We must not fail to think of some of the newer antiseptics, such as solfanilamide. These are now being used extensively in the treatment of streptococcic infections and we may expect early evaluation of them. The use of convalescent streptococcus serum has certainly given very promising results. Mention should be made of the use of x-ray in infections of this type. I have recently had some very good results following therapeutic doses of x-ray. Lymphocytes, of all body cells, are the most sensitive to x-ray. They regularly accompany the infiltration of acute infections and are the first destroyed by x-ray; even as soon as twenty minutes. Early disintegration of lymphocytes takes place with relief of pressure and thereby of pain. Nuclear chromatim is dispersed and continues for several days, causing increased phagocytosis. The polymorphonuclears and eosinophiles undergo a similar but belated disintegration. In addition to the destruction of the lymphocytes and promotion of phagocytosis, roentgen rays are believed to liberate enzymes, antibodies and unknown principles which promote autolysis and liquefaction. Something should be said about short wave diathermy. A recent article by Laszlo indicated that relief of pain, prompt resolution of local infections or definite speeding up of abscess formation takes place in a considerable number of cases. He further stated that by this method many pharyngeal abscesses may be aborted. Adequate laboratory examination regarding the cytologic, the hemoglobin, calcium and chloride contents of the blood is most important. Blood transfusion, glucose intravenously and saline used intravenously or subcutaneously are life sustaining and saving measures and when indicated must not be omitted.

Each one of these conditions is an individual problem. One must learn not to be dogmatic nor

to swing too far with the pendulum of conservatism or radicalism. There are many things to do besides surgery. How to pick one case as surgical from another that is not, is a problem which requires careful consideration of all of the clinical, objective and subjective symptoms. A final decision results from that intangible something which comes only with long years of experience and observation.

W. C. U. Bldg.

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ELECTRICAL ACCIDENTS, SHOCK, BURNS AND GLARE INJURY TO EYES

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Burns, whether thermal, chemical or electrical, are to my mind one of the most neglected surgical conditions that we have to contend with today. The average medical man seems indifferent to this class of work. It is many times relegated to the interne or nurse to apply the therapy. As regards the treatment, for the greater part, they are treated alike and oils, ointments and commercial burn dressings seems to be the method of choice. This is not intended as an indictment of my brother physicians and surgeons but my desire is wholly in the form of a plea for a more scientific way of meeting this condition and that more research will be forthcoming. May we not some day have a standard of burn therapy as we have in the treatment of fractures today.

We should not lose sight of the fact, that each burn case is quite different and individualization should be the aim rather than using a generalized form of treatment. Indifference in burn therapy, results in a prolonged convalescence for the patient, with a resultant economic loss to both employe and employer. Infections, contractures, unsightly scars and impaired function are further results of improper technique. Many times after recovery from the initial burn, considerable reconstruction and plastic surgery is necessary for both cosmetic and functional restoration. Much of this, the patient might be spared, had a more close observation been given during the early stages of the disability.

Regardless of the origin of the burn, they are due to heat of one nature or another. The resultant destruction of the part involved may be superficial or deep. The skin may be only reddened or entire skin with the underlying structures may be destroyed by actual cremation. We may classify these burns into first, second and third degree. First degree with simple scorching of the skin as evidenced by reddening of the surface. Second degree, where there is bleb or blister formation with exudation of serum. Third degree where the entire skin thickness is destroyed and also some destruction of the underlying tissues. This class of burn may involve the muscles, nerves, blood vessels and even the bone itself. In some cases an entire part or extremity may be amputated by the burn.

It has been said that the pathology present and treatment of all burns are generally speaking, alike. Electrical burns are the result of some part of a person's anatomy contacting an electrical conductor, with an arcing of the current which produces a very high temperature, causing various degrees of tissue destruction. The heat generated is enormous. I believe my assertion will not be denied, that on account of the terrific heat generated in electrical burns, we have far greater tissue destruction both in extent and depth. At first observation these burns may appear trivial and superficial; a few days later witness a breaking down of tissue which formerly

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appeared normal. Again these burns extend over a arge area of the body and despite their hopeless appearance, many times make an uneventful recovery. It is necessary that we be guarded in our early prognosis.

Another factor that makes for severity in electric burns is the often accompanying electric shock at time of contact with the electrical conductor. This in itself often accounts for the resulting fatality in a patient who was only slightly burned. This electric shock is many times more severe than the traumatic shock that follows other classes of burns. Not all electrical burn cases receive an accompanying shock but the average is of frequent occurrence to give this important consideration.

It has been frequently stated, that all burns may be regarded as infected wounds and with this I do not hesitate to take issue. From my own experience over a period of twenty years with observation of hundreds of electrification cases and at least a thousand electric burn cases, we are lead to believe, that after the initial burning, these wounds are practically germ free. This is due to the tremendous heat present at time of current arcing which practically sterilizes the wound. On account of dehydration of the tissues due to the burn, the absorption factor of the tissues are greatly lessened and there is less danger of infection due to this lack of absorption. Those infections that appear at a later date, after normal tissue absorption has returned to normal, are to my mind, due to the bunglesome first aid services rendered in many cases by layman first aid men. The needless handling and frequent dressing changes, coupled with the common use of greasy dressings, account for the many infections that later develop.

The type of current, direct or alternating, makes little difference as to the severity of the burn. In the former the voltage is much less than in the alternating. 600 volts is the most common used in industry of direct current while in industry alternating current is used from 110 volts up to 100,000 volts and over. We have seen patients burned with the low voltage direct current who were burned just as severe as those of high alternating current. In low voltage current, there is always the possibility of fatal outcome due to the action of the current on the heart, producing ventricular fibrillation.

Neglect of the proper treatment in small superficial burns have later developed into serious complications with loss of an anatomical part and even in death.

The question is often asked, as to the cause of the multiple burns so often found in electrical accidents upon the patient. This is due to the fact, that when electrified, the patient is thrown about causing various parts of their body to contact the conductor or the ground. When the make and break with the current is made there is always an arc and the part in contact will be burned. Generally the point of entrance and exit will show the most severe burns.

Another factor that determines the severity of burns is the condition of the person's skin as to whether it is wet or dry. If the skin surfaces are dry, the current meets with greater resistance and heat is generated to a greater degree and the destruction is in proportion to this heat. When the skin is wet, it offers but slight resistance to the passage of the current. In these cases, destruction may be very little but if the contacts with the electrical conductor are not firm then the burns are apt to be more severe. The skin of women and children being of a finer texture and usually moist, readily allow the entrance of the current into the body through the lowered skin resistance.

The palms of the workingman's hands are generally calloused, more dry and offer greater resistance to the current passage. Areas rich in vascular supply permits of easy entrance of the current to the body. While more of the current may enter the body through low skin resistance, the greater will be the shock to the patient. In industry, the greater number of burns are on the workingman's hands as from the nature of their work, the hands are more liable to contact the current than any other part of their body. Burns are more prevalent in the summer months. This is due to the fact that this time is that in which there is the greatest industrial activity in the electrical field. The severity of the electric shock is greater due to the perspiration soaked person having a lower skin resistance to the current. The burns received at this time also show increased severity. The longer the person is in contact with the current, the greater the severity of shock as well as the greater the destruction of tissue. In this event,

the tissues are charred and actual cremation may result.

The electrical current passing through the skin is transformed into heat and this alters those structures in the pathway of the current. There is produced, the so-called current markings on the skin that are considered of diagnostic value if present, as to electrification. The appearance of the current markings are usually linear in outline and elevated above the surrounding skin surface. . . There is a small indentation in the center of the skin marking which extends down into the skin. The color is a pale grayish yellow or tan. They may be black. Small metallic particles may be seen adhering to the skin surface and come from the metal electric conductor.

These markings for the greater part are painless and there is very little if any inflammatory reaction. This tissue undergoes a break down process, slowly necrosing without pus formation. After sloughing, there is a clean pink area of granulations which result in a soft scar formation. These markings are found about the burned area and where the burns are deep, we have a dry, dehydrated appearance of the wounds. There is present a grayish yellow or blackish appearance to the burned surface. These burns while severe are very often free of pain. They are irregular in outline and appear self limiting. It is difficult to determine the depth of the burn or its extent. Little do we know the extent of the damage done by the heat to the underlying structures. For this reason, any attempt at surgery, may lead to hemorrhage, that will be difficult to control. Very seldom will one find an actual hemorrhage in the burn but close observation is essential, to detect secondary bleeding after the blood pressure rises and reaction has set in. About the current markings as well as about the burns we will find edema which may be localized or extensive. The cause of this edema is not known but may be attributed to reaction to the heat.

In addition to the skin lesions, we have other conditions to meet, such as unconsciousness which may be due to a partial block or inhibition of the central nervous system with a resultant paralysis of respiration. We may have a heart block or ventricular fibrillation present, which is fatal. Many times there is only a temporary suspended animation and all that is required, is the institution of some form of artificial respiration at once and persisted in over a long period of time. As this paper is of burn complications of electrical accidents, we will not take up the therapy of electrification but get along to the treatment of burns.

The cardinal features to keep in mind, in burn therapy, are the prevention of dehydration that is always present after electrification and severe electric burns. Likewise of utmost importance, is the reduction of the high blood concentration so often present. Both of these conditions are due to the depletion of the fluid content of the body and the loss of blood serum from the wide open capillaries. Another feature to keep in mind, is the maintaining of wound asepsis and the prevention of infection of the wounds. With these conditions met, we direct our attention toward the promotion of epithelization of the burned area and the encouragement of healthy granulations. Our last efforts are directed toward correction of any contractures, undue scarring or complications that have developed despite our efforts.

All burns pass through three stages of tissue repair. That of a form of dermatitis with redness, pain and swelling, to be followed by a period of exudation of serum with blister formation. The last stage is that of cicatrization characterized by granulation, contractures and scar formation.

It is not the intention of this paper to tell you gentlemen here assembled, what technique or therapy you should use in the treatment of your burn cases but simply to bring to your attention some of the things that have been successful in our past experience. What success we have enjoyed is attributed entirely to studying those contributions of other surgeons whose results we have aimed to emulate. As before stated, no two burns are alike and the treatment of choice must fit the case in hand. The therapy should be divided into first aid in the field (many times by the layman) and subsequent emergency treatment by the surgeon in the home or hospital. The final treatment is directed toward the complications arising during the period of recovery.

In the companies with which I am affiliated, it has been deemed necessary that we train cer-

tain employees in first aid services, so that whatever injuries are sustained in the field by an employee, there will be some one present to apply proceedures necessary to prevent contamination of wounds and from possibility of further damage in the transportation of the injured to medical authority or to a hospital.

We have a simple burn routine for use in the field that is employed solely between the time of injury and transportation of the patient to the physician. The application of sterile petrolatum from tubes to the wound and the tubes are used once and discarded.

These first and second degree burns are covered then with sterile gauze and lightly bandaged. If the burns are deep and extensive, usually a posterior splint is applied for support of the extremity in transportation. In all third degree burns, the area is covered with sterile fluffy gauze and bandaged. All cases are carried to the surgeon instead of calling them to the scene of the accident as many valuable minutes are saved by this procedure and meets with the approval of our associate surgeons. Many times it is almost impossible to secure a doctor at the scene of accident and if available a time must elapse before his arrival so we believe it much to the patient's interest to shorten the interval between the accident and the surgical attention.

If ointments and greasy dressings are used on third degree burns it causes undue pain in their removal if we are to make use of the tannic acid treatment in the hospital. The use of these ointments often favor the growth of bacteria. They are mussy both to the patient and the bed linen is always soiled with the grease. We are not always positive that the ointments and oil used is sterile and not contaminated from previous use as so often found in hospitals. Our own method of treatment in the hospital for first and second degree burns is the application of sterile petrolatum on sterile gauze. We also use a sodium bicarbonate wet dressing in some of our cases and as indicated picric acid dressings. We have come to the belief that picric acid is indicated only in the first twenty-four hours and that if used promiscuously that toxic symptoms such as delirium, nausea, vomiting, restlessness, stupor, etc., often develop. With the cessation of picric acid these symptoms disappear. Besides the coloration that persists after the use of picric acid, especially about the face, is objectionable as it many times remains long after the burn is healed.

In all severe burns we treat by immediate rest in bed with complete relaxation and freedom from pain secured by the use of morphine. The patient is placed upon sterile sheets, dressed in a sterile gown. Sterile sheets are placed over a bed cradle to prevent pressure of coverings on the patient.

Shock is at once combatted by the elevation of the head of the bed. Heat is provided by the use of carbon electric lights protected so as not to contact the patient and placed under the cradle. Hot water bags placed about the patient to maintain the body heat. Stimulation is indicated often to support the heart and your favorite drug may be used as indicated. The fluid content of the body should be replenished as soon as possible, either by the oral administration of fluids or by way of the veins. The continuous drip method per rectum is ideal and will be borne much better then trying to have the patient drink as, though thirsty, water does not seem to satisfy. The use of sodium bicarbonate is of value in the restoration of the alkaline balance of the body. Intravenous glucose and saline is of great value as well as the transfusion of blood, when the patient's condition warrant. It is better many times to anticipate possible conditions and institute these intravenous medications then to wait until the patient's condition make their use imperative.

Local application of tannic acid 2-5% solution is applied on fluffy gauze but I personally prefer the use of the sprayng on of the tannic acid and dried by the use of a hot air blower. If the burn is so situated that it can be immersed in a bath of tannic acid solution as recommended by Welles of Connecticut, a much better result from the use of tannic acid can be had.

Underhill, 1933, showed the importance of the replenishing of the fluid loss through the granulating surfaces of burns. Davidson of Michigan in 1925 contributed his tannic acid treatment which has revolutionized burn therapy. His recommendation was the use of tannic acid applied to the burn with gauze. Soon after Beck and Powers recommended the use of the spray in the application of the tannic

acid to the burned area. Donald Welles of Connecticut in 1933 reports his success with the immersion of the patient's burns in a tub containing the tannic acid solution. The results obtained from these gentlemen's contributions to burn therapy are to my mind, the first real valuable progress made in this work. We hear surgeons criticize tannic acid method of treating burns claiming that they have not had as successful results as have others that recommend the treatment. Only in recent talk with a very successful surgeon I was bluntly told that I was following a fad and that in a short time tannic acid would be rated with the former paraffine or amberine treatment of burns. Every man to his own opinion but those who have not had the same brilliant results as experienced by others can not place the blame on the method but must place the fault where it belongs. Somewhere there was a slipup in the technique of the surgeon or he was not acquainted with the facts underlying tannic acid therapy. May I presume to portray some of the quainted with the facts underlying tannic acid results? Many produce the tanning effect too quickly by strong solutions of tannic acid and continue the tanning for too long periods of time. They have a hard, impervious, tough membrane formed the same as found in actual over tanning of leather. The correct membrane should be soft and pliable. Some, after applying the tannic acid, are lulled into complacency and think all one has to do is wait for the wound to heal without further attention. We have seen doctors inspecting the burns press and feel the membrane with their fingers not gloved, and neglect of aseptic technique invites bacterial invasion. The infection in wounds treated with tannic acid, to my mind, begins at the edges of the membrane and extends beneath the coagulated membrane where drainage is impossible. Early attention to asepsis in after examination or dressing of the wound, paying particular attention to the edges of the membrane that have begun to curl up and at the first sign of inflammatory change begin the treatment of the insidious infection. Moisture due to perspiration under and above the membrane have a tendency to make for a favorable medium for bacterial growth.

We should always aim to obtain a dry condition of the burned area, and the patient's dressings or bed linen should not be damp as this leads often to unnecessary chilling of the patient. May I here describe a condition which is frequently observed by those seeing large numbers of these cases.

Patients suffering from burns have their body water content depleted with a condition of dehydration present as well as a high blood concentration due to loss of the fluidity of the blood. We put forth every effort toward the replacement of this fluid loss by forced fluid intake and locally by the astringent effect of the tannic acid forming a coagulum or membrane to prevent the constant leaking of serum from the wide open capillaries of the wound surface. Then we turn right around and by means of artificial heat produce active perspiration over the entire body of our patient, that causes them to lose more fluid then we can replace by our treatment. It is essential that we maintain heat while the patient is in shock but I wish to emphasize that after this period is past, we should not cause excessive perspiration by attempting to keep the patient too warm. Have comfortable temperature within the room just sufficient to prevent chilling the patient.

The usual procedure is for the membrane to turn or curl at the edges and become loosened so that it may be easily removed. In the greater number of instances, the underlying tissues present a clean, read, granulating surface which results in a soft pliable scar. Should infection develop beneath the membrane, this calls for removal of the membrane under anesthesia. I do not believe that one should attempt removal of the membrane without an anesthetic on account of the attendant pain. In some cases on account of counter indications it is thought best not to use an anesthetic, the simple cutting through the membrane in longitudinal lines down to the tissue below will be sufficient to drain any infective material. If the membrane is tough and over tanned this is well nigh impossible. Some men hesitate to use tannic acid by the immersion method for fear of toxic effect that may be produced but I believe that fear is over emphasized. This fear is especially present as concerns children but even here there is little to be feared. I believe in the wide spread use of tannic acid in burn therapy and that

very few men if any can really demonstrate an actual case of poisoning where tannic acid has been used intelligently.

Blackfoot, Bennet and Browning have suggested the use of 1/1000 solution of acriflavin to combat infection in burns and to those who have given it a trial, satisfactory results have been obtained.

To encourage granulation growth, normal horse serum with the addition of 0.35% cresol as a germ retardant is recommended by Montieth and Robinson's method is a value aid.

All contact with or dressing of burned area should be attended with the strictest observation of asepsis. These cases merit the use of gloved hands, the same as any open operation. Only those solutions are to be used that are known to be sterile. Many times we find in certain forms of treatment, that our gauze dressings have adhered to the wound and the removal of same has caused severe pain and discomfort to the patient. This condition often results in what I have called dressing symptoms which can not be accounted for in any other way. A child anticipating the ordeal of redressing of its wounds has a decided fear complex develop and very often there is a rise in the pulse rate and temperature with an accompanying restlessness, that appears not unlike the beginning of an infection. Sometimes this is accompanied by actual tremors simulating the onset of infection. These symptoms usually appear each day at the time previous to the actual wound dressing. Pain is the dread of children and if the dressings adhere, it is well to have the nurse or interne apply a wet dressing of boracic acid an hour before your arrival. When the actual dressing time is at hand those secretions which have glued the dressing to the wound will have become softened and the dressings may be removed with little or no pain. The disappearance of the pain element in wound dressing witnesses the disappearance of the so-called dressing symptoms.

Much emphasis should be placed upon the value of having available sharp cutting instruments and forceps of a nature that will permit of the removal of necrotic tissue and tags of membrane with the least amount of pulling and discomfort to the patient.

Another surgical procedure in the toilet of the burn wound, is the use of fluffed gauze, not flat pads of gauze, to be used only where raw surfaces are exposed. The previous moistening of dressings that adhere to the wound also prevents the breaking up of the delicate granulations of the reparative tissue which often adhere or extend through the meshes of the gauze. When ruthlessly pulled free these small capillary loops are torn and a bleeding surface is left behind for favorable growth of bacteria. Why is it so common that it is thought necessary to change surgical dressings so frequently in the average hospital? The value that seems to accrue to this is to my mind lost in the actual damage done to growing tissue and is an avenue of infection developing.

In 1916 I reported a non-adhering gauze made from impregnating a wide mesh gauze with stearine, paraffin and petrolatum. This appeared in J. A. M. A. and should not be confused with the stiff paraffined sheets of gauze that are on the market. Our gauze retained its original flexibility, not adhering to the wound and permitting drainage of secretions through the meshes into the fluff gauze placed above it. It is so simple that any doctor can prepare the dressings in his own office and the formula was given to the medical profession without any cost involved.

In children, we have hesitated to use large wet dressings of boracic acid where the burned area was extensive as there has been some question as to its toxicity in burn cases. Beside these dressings by being constantly wet cause the clothing and bed linen to be wet, which is not only uncomfortable to the patient but encourages chilling of the body.

If burn wounds are given the proper toilet, they should be free of any disagreeable odors and nothing I know of gives better results than the use of weak permanganate solutions sprayed on wounds at time of dressings.

Where blister formation is present and there is need to evacuate the serous contents, it is always advisable to open them under strict asepsis and a removal of the dead covering. The area should be dried and dressed. Do not allow the unopened blisters to remain too long as often they become infected.

It is useless to remind those present, that the promiscuous breaking of burn blisters with the

fingers is not permissible if not criminal. Still that has been witnessed as well as the removal of crusts with ungloved fingers. All crusts should be removed as soon as they become loosened as they favor germ growth. We should give to the redressings the same care, if not greater care, than we do to the redressings of postoperative conditions. In the former we have usually a large raw area while in the latter we have only the line of incision and this protected by reparative processes. The opportunity of introducing infection in the former is much greater than in the latter case.

Posture of the patient is an important factor in their comfort. Many times the patient will complain of pain in the extremities and we direct measures looking toward relief, when by simply changing the position of the patient affords immediate relief. Many of these patients attempt to keep the bed clothing from exerting pressure on their burns and by holding themselves in a cramped position produce discomfort if not real pain. See that the patient has complete muscular relaxation by the judicious placement of pillows and folded bath towels so that the patient is comfortable without any expenditure of effort on their part.

Under posture we may also include the placement of burned parts so that flexion deformities will not be encouraged. Splinting the part will in the beginning of the treatment, prevent contractures at a later date. No two raw surfaces should be allowed to contact each other as they may unite. This may be prevented by splinting or restraint. The axilla burns are the most apt to approximate raw surfaces and we have seen quite a good deal of reconstruction surgery done to correct this deformity when this might have been avoided if care had been exerted to keep the parts separated in the early days of the treatment. Do not permit sentiment or fear of discomfort of the patient to retard your keeping the parts in extension as the pain is of temporary nature in the early stages of the injury. If we delay until the flexor muscles have pulled the parts into extreme flexion we will usually fail to correct same. By that time there may have developed an accompanying fibrous ankylosis within the joint itself and recovery more difficult if not impossible.

We are firm advocates of the great value in frequent changing of burned patients in bed and not permitting them to lie flat on their backs. By a semi-recumbent or semi-Fowler position we do not favor stasis in the lung and we discourage the so-called static pneumonia. If the burns will permit of the patient being out of bed, it is desirable that we get them up into a chair. They feel better and their morale is greatly improved. In children it is important to get them up and out of doors in the sun, in the summer. Exposure of the burned area to sunlight is of great value and is soon reflected in the improvement in the child's general condition.

Moorhead of New York has his patient's puff out the cheeks and move the muscles of the face to prevent contraction of scars of the face. This is of the utmost importance as we know the scar formation in electric burns are of a more soft texture than those found in burns of other origin. They have a tendency to stretch more easily and do not adhere to underlying tissues as firmly as other burn scars. They also fade more quickly than those of other burns. There is also often found, keloid formation, especially in burn scars of children and women. Treatment with the roentgen ray and radium hastens absorption and softening of the keloid. If the scarring and keloid has a poor cosmetic effect, then surgical removal by excision of scar and the approximation of the wound edges with a subcutaneous suture, followed by a radium pack will frequently prevent a keloid from reforming in the incision.

When is surgery indicated? This is a much discussed subject and form my own personal experience of many burned cases treated surgically for the removal of apparant destroyed tissues, I have no doubt of its dangers. We are not always able to determine the depth or extent of the devitalized tissue and have no way of knowing how far the effect of the heat has reached. We may induce hemorrhage that is difficult to control and usually we cannot afford to have bleeding with a further depletion of the fluid content of the body. For after a severe hemorrhage in a burned and shocked patient they seldom recover. The bleeding does not have to be severe in many cases to have a like result. Many times a secondary hemorrhage will develop after the operation is completed and the patient back in bed. They actually have been known to bleed to death in their dressings. I

cannot see the surgical wisdom or of what value early surgical interference is going to bring. We certainly in the early stages of the burn have shock of one kind or another and what advantage is gained by increasing that shock by a surgical operation?

Where tendons or nerves are injured in the burn or destroyed by the heat, any attempt at repair soon after the accident may end in failure. I believe the far better judgment is to await a future date for surgery. It is needless to say that no attempt at surgery should be attempted in the presence of an infected burn. Sufficient time must elapse after the disappearance of the infection before reparative surgery is attempted. The same holds good in skin grafting, as failure and needless sacrifice of good skin will only result if infection is present. The time for replacement of skin over a denuded area is soon after the securing of a healthy area. Skin grafting at an early date, all other things being equal, is indicated over burns on the flexor surfaces of joint areas. Over these areas much time is saved to the patient, earlier return to his work is assured and the most important of all, is the prevention of contractures.

As to the choice of skin grafting I can only advise the one with which you have had the most favorable results. Thirsch grafts seem to be the one most commonly used. Pedicle and tubular grafts are indicated where a deep filling is essential. Koch and Kanavel's method of suturing a full thickness graft to the granulating surface without tension and the graft cut to size and shape of denuded area gives excellent cosmetic results.

We might say at this point a few words about the use of silver foil placed in direct contact with the wound after all bleb formations have been removed. Pfab asserts that the silver prevents infection, that the patient is relieved at once and healing occurs with a minimum of scarring.

Both Moorhead of New York and Scott of Washington recommend the use of sodium bicarbonate dressings with excellent results. The former uses this wet dressing in all first degree burns.

Shullito of London favors the use of 1-5% solution of silver nitrate sprayed or painted on the burn and follows with an exposure of a mercury vapor or tungsten arc lamp or the sun. He claims the fixing of the cell protein in the destroyed tissue prevent absorption of infective material and avoids toxemia.

The use of gentian violet in burn therapy has met with favor at the hands of some surgeons but personally I feel the staining of everything including the patient, surgeon and clothing about the patient is so messy that this has discouraged use of it in my cases.

A word might not be out of place here as to paraffin treatment of burns which had such vogue some twenty years ago. There is a place for it today in burn therapy and if restricted to the first and second degree burns excellent results will be forthcoming.

We should not be lead by high pressure salesmen to become enthusiastic over the many burn ointments which they recommend as the last word in burn treatment. Many of them are expensive and of no greater value than the more simple ointments.

Closely allied with electric burns we find the electric flashes or glare injury to the eyes. This condition is not due to actual contact with the flame of the electric arc or the heat generated but to the ultra violet ray radiation of the arc. There is a tremendous contraction of the pupils of the eyes in their effort toward preventing the entrance of the glare to the retina.

With all electric burns there are more or less an accompanying flash or glare produced upon the eyes.

The symptoms of glare injury to the eyes are but transitory and usually disappear within twenty hours after the accident. The pupils are at first greatly dilated which follows the tremendous contraction produced at instant of the glare. The sclera is injected, conjunctiva inflamed, profuse lachrymation, sensation of sand in the eyes and the lids feel hot and dry. There may be an accompanying blurring of vision with sensitiveness to light. The first aid is restricted to instillation of sterile castor oil and the use of opaque glasses. We have seen hundreds of these cases but have yet to witness one in which any permanent damage has been done to the eye or where any visual defect has developed. This is made more emphatic, when it is known that for twenty years, we have had a periodical annual examination of all employees. We know the preaccidental condition of each employee as

well as the post accidental condition. No complications have been found over this period of twenty years and these examinations have been made by an occulist in our department. No electric cataracts have been found and no so-called star fractures of the lens been seen after electrification as is often claimed by others.

As regards burns and electric shock, we have likewise had no remote effects produced after electrification as is so often claimed in medical legal cases. We have had no permanent physical or mental defects result from electrification. The only permanent defects witnessed, have been those where an actual part has been destroyed by the burn itself. These results are not due to any great amount of skill on the part of our group but are solely the end results of the usual case of electrical accident. If in the twenty years of our observation on a large number of these cases, we have had no permanent physical and remote complications as so often claimed by others, then either our method of observation has been lax or we are talking through our hat.

ELECTRIC BURN CASES

First degree	376
Second degree	330
Third degree	164
Total	870

Note: In the electrical burn patient we may find one or more of these burn degrees and usually in the severe injury we will find all three degrees present.

ANATOMICAL PARTS BURNED

Fingers and hands	311
Wrist and arms	138
Face, head, neck	300
Feet and toes	29
Ankles and legs	50
Chest, body and back	42
Total	870

Note: The hands and figures are the most frequently burned due to the nature of the work performed by the employee. The face, head and neck are usually burned by the so-called electric flash that produces an accompanying flash or glare injury to the eyes.

RESUME OF ELECTRIC BURNS

Lost time burn cases	494
No lost time burn cases	376
Amputation of parts	10
Keloid formation	4
Slight after evidence injury	376
Pliable soft scars	160
Faint scarring	376
Contractures	7
Deaths from burns	2

ELECTRIC FLASHES

Flashes to the eyes	450
No lost time injuries	310
Lost time flashes	140
Average time lost	2 days
Permanent ocular defects	0
Defective vision	0

Note: From these figures it will be seen that the remote effects from electric burns and flashes have been greatly exaggerated.

CONCLUSION

The above cases came under our observation from various sources during the past years and include both employees of the electrical industry and those not employed, by reason of trespassing or using electricity for other purposes than it was intended. With the increase of the use of electricity, many more people have recourse to it. The electric current as furnished in your home and factory is perfectly safe to use for the purpose for which its is supplied. The same is true of appliances that are sold by reputable manufacturers and are safe to use as directed. Installations are safe only when they are put in by those persons who are qualified to make the installations and who should be called in the maintenance of your electric circuits and appliances. Children climbing trees or poles during play is a hazard and should be discouraged.

It is not the intention of the writer to instill in your minds that electric current as furnished in your home is a hazard but it is a well known fact that accidents occur from its misuse both intentional and nonintentional. I am desirous of calling to your attention that burn therapy is vitally in need of study and research by our profession, so that out of this study there may arise standards that make for more scientific treatment of this class of injury. Also I wish not to be misunderstood that I am trying to convey the fact that the electrical industry is any more hazardous than other industries nor is the hazard in the home from the use of electricity any more of a hazard than other common every day necessities of life.

DISCUSSION

Dr. C. Paul White, Kewanee: I would like to ask about the frequency, and also the care one should exercise in the expectancy of tetanus in these burns. My reason for asking is that we have seen it occur in two instances of linemen. One case, the man fell from

the wire onto a very grassy plot. He had a very severe burn that cost him his leg, and he developed a tetanus fourteen days later. Antitoxin, unfortunately, was not given for twenty-four hours.

SLEEP INDUCED BY SODIUM AMYTAL

A Modified Treatment for Use in Psychoses

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The value of rest as a therapeutic agent in any type of disability has been definitely recognized from time immemorial. The sick or injured human or animal instinctively seeks rest as a result of his disability.

Modern therapeutic technic provides for the administration effectively of physical inactivity and energy conservation in almost every type of organic illness. This does not mean, however, that psychic rest or conservation of psychic or emotional energy is accomplished. Neurologists and psychiatrists realize fully that so long as consciousness is functioning there will inevitably be some degree of mental energy expenditure. Therefore, it is only during the function of sleep that conscious activity is suspended and the metabolic activities are enabled effectively to generate and restore to the cells of the central nervous system the energy which has previously been expended. In all types of acute psychoses there is more or less continuous over-expenditure of emotional energy. In the maniacal and agitated types there is in addition to this an over-physical activity as well. It has been the effort of psychiatrists always to devise some therapeutic measure to secure both physical and mental rest for patients of this type. It has been apparent that prolonged narcosis would promise this result and would be the practical and desirable form of therapy, provided, it could be accomplished with reasonable safety.

Bleckwenn[1] published a report in 1930 of his studies along this line, using sodium iso-amyl-ethyl-barbiturate intravenously. Prior to this time we had been using a combination of sodium salts of phenobarbital and barbital, but had not quite had the courage to push these drugs to a state of prolonged narcosis. Stimulated by the reports of Bleckwenn and others, we began a cautious experiment in the use of these drugs in a wide variety of conditions, which has resulted in the practices to be outlined.

The idea of producing narcosis in the psychotic had been known a long time, but it is the opinion of many European writers that Kläsi, a Swiss psychiatrist, is to be given credit for this method as he was the first to introduce it in the treatment of the psychotic. He used the drug somnifene.

I. *The Pharmacology of Sodium Amytal.* The drug used almost exclusively was sodium amytal (the sodium salt of iso-amyl-ethyl-barbituric acid). It was first prepared and used in animals by Page and Coryllos in 1926.

Zerfas and his associates were the first to use sodium amytal intravenously for surgical anesthesia in man, and Bleckwenn was the first to report the use of the drug in psychoses.

The chemistry of this drug is as follows: Sodium amytal belongs to the barbiturate family. See Chart I. Barbituric acid is a combination of urea and malonic acid. These are the principals in all barbiturates. They belong to the purine group. CH_2—CO—$(NH)_2$—CO is called the hypophore radical and is the part of these drugs (barbiturates) which is responsible for the narcosis.

When malonic acid is treated with urea, it yields a cyclic ureide, malonyl-urea or barbituric acid, for example:

Rapidity and Duration. The variation in the side chains of barbituric acid derivatives results in the extreme differences in both the speed and duration of action. The results in Table 2, compiled from a large series of animals, shows that "Seconal" causes the most rapid anesthesia and has the shortest duration of hypnosis, while phenobarbital sodium is the slowest as well as the longest acting drug. The differences in the duration of action are well illustrated in Table 3, the order of activity being "Seconal" shorter than pentobarbital sodium, pentobarbital sodium shorter than "Sodium Amytal," shorter than sodium barbital, and sodium barbital shorter than phenobarbital sodium.

Read before Irving Park Branch, Chicago, Medical Society, May 26, 1937.

TABLE 1.—IN DOGS BY ORAL ADMINISTRATION

Drug	Onset of Anesthesia Min.	Duration of Anesthesia Hrs.	Min.	Time Required for Complete Disappearance of Hypnotic Symptoms Hrs.	Min.
"Seconal"	30	2	7	12	24
Pentobarbital Sodium.	35	2	..	15	..
"Sodium Amytal" ...	35	2	29	22	20
Sodium Barbital	50	6	20	48	..
Phenobarbital Sodium.	65	7	30	60	..

I have prepared a chart which will give some idea of the average effects of representative barbiturates when administered orally or parentally to humans in equal doses. Charts 3 and 4 have been prepared on the basis of my clinical experience.

Chart 3 indicates that "Seconal" in a dose of 15 grains injected as a 5% solution, 2 cc. per minute, produces surgical anesthesia within six to ten minutes. The anesthesia lasts somewhat less than half an hour, and return to consciousness is accomplished within five or seven hours. A similar dose of pentobarbital sodium, similarly injected, produces somewhat less than surgical anesthesia, and recovery is not complete until from the eighth to the tenth hour. While a comparable dose of "Sodium Amytal" produces analgesia and mild anesthesia. Complete recovery from such a dose of "Sodium Amytal" requires twelve to fourteen hours.

Chart 4 indicates that the oral administration of equal doses of each of these barbiturates has in general the same anesthetic or analgesic action but that the effects come on more slowly and the total duration of action is longer.

The action of sodium amytal when given in safe doses is primarily hypnotic. The exact localizing action of the drug is unknown but it is fairly well established that it acts on the brain stem, probably in the hypothalamic portion of the diencephalon. According to Keeser and Keeser, the hypnotic action of the barbiturates is chiefly upon the thalamus and corpus striatum.

2. *Technique.* The following procedure has been followed. First, the patient is studied to secure a fair knowledge of his pre-morbid personality and of events which led to the break-

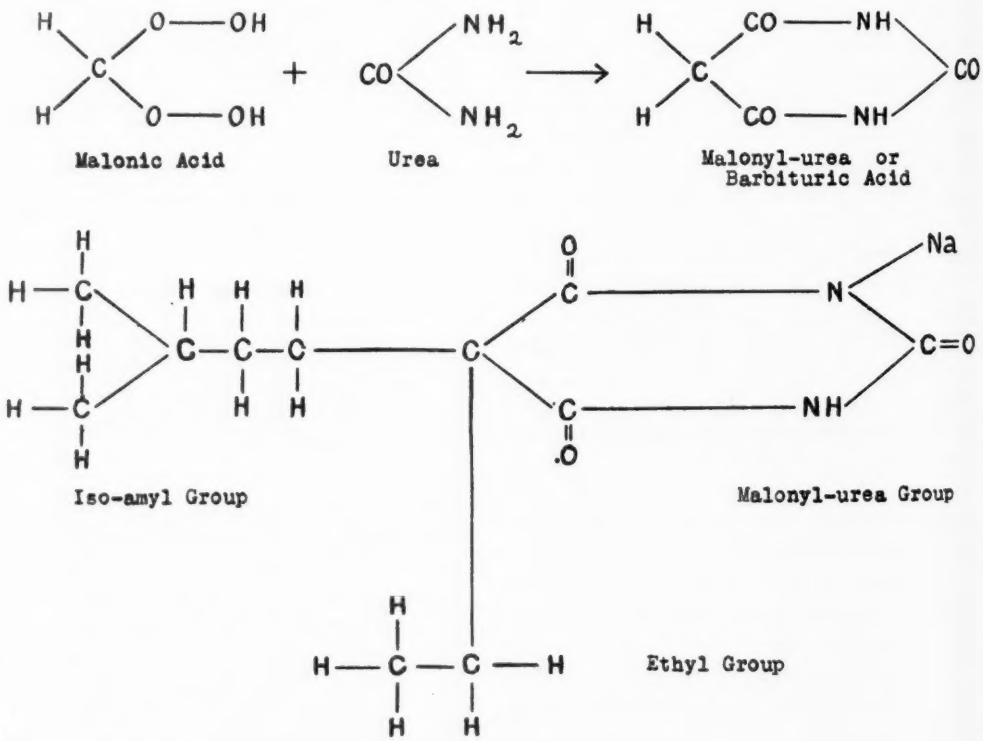


CHART 1

Sodium Iso-amyl Ethyl Malonyl-urea or Sodium Iso-amyl Ethyl Barbiturate "Sodium Amytal"

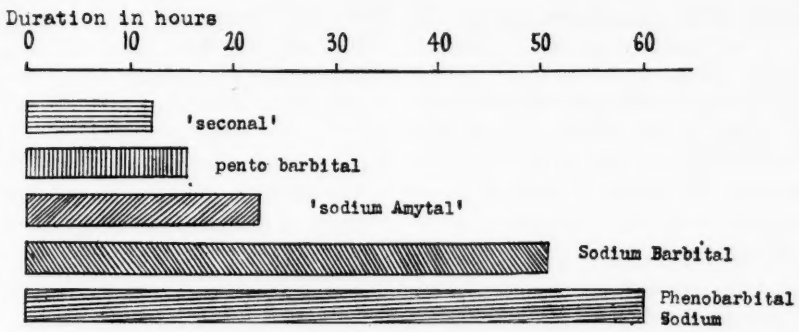
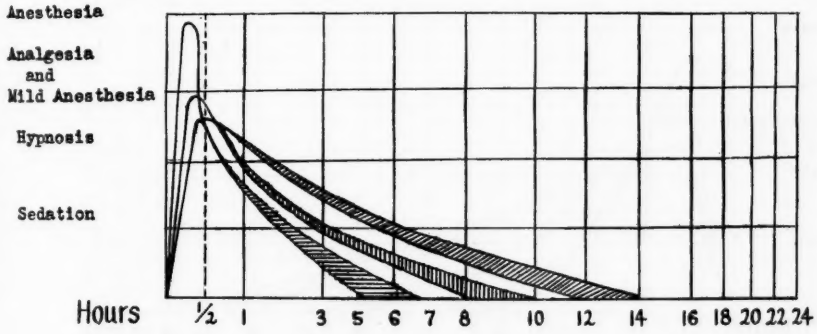


CHART 2

Speed and Duration of Action with Minimal Anesthetic Doses.

down. Secondly, the worker tries to establish as much rapport as possible prior to the institution of treatment. These two requirements seem to be essential for psychotherapy, which is probably one of the most important factors in bringing about a favorable result with sodium amytal treatment.

The patient is given a thorough physical examination and his gastrointestinal tract is cleaned. Rectal temperature, pulse, respiration and blood pressure readings are taken for a few days prior to the treatment with hypnotics in order to determine the average variations. Then the patient is secluded in a quiet room and given 3 or 6 grain doses to determine whether there is any idiosyncrasy for the drug. If there is no idiosyncrasy, 12 grains of sodium amytal is administered on a 3 or 4 hours schedule by mouth either in capsule or by putting the powder in orange juice; until the patient is soundly asleep. It is then continued in dosage of 6 or 9 grains every four or eight hours as needed to produce continuous sleep. The routine of administration of medicine and of feeding and elimination can usually be worked out so that the patient becomes awake enough to swallow his food and evacuate bowels and bladder. After the first 36 or 48 hours it is usually possible to maintain a



Intravenous Injection of Equal Doses of three Representative Barbiturates, All of Which are Sodium Salts.

'Seconal' - 15 grains

Sodium Pentobarbital - 15 grains

'Sodium Amytal' - 15 grains

CHART 3

Comparison of Duration of Hypnotic Action in Dogs with an Anesthetic Dose by Mouth.

state of narcosis with a diminished dosage. If the patient is very much disturbed, it may be advantageous to give it intravenously. If less disturbed and patient is agreeable the drug can be given by mouth or even rectum. If the patient is greatly disturbed he can be given massive doses, as much as 110 grains in 24 hours or as much as 27 grains in one dose (by mouth).

During narcosis the temperature, pulse, respiration and blood-pressure readings are taken every 4 hours and urinalysis daily. To make sure of proper gastrointestinal elimination and to prevent complications, daily enemas are given. If the bladder is distended during narcosis, and this is a matter that bears watching, patient should be catheterized. These narcotized patients require careful watching and nursing. It is desirable at times to place side-boards on the beds to prevent their rolling out. The nurse is instructed to turn patient from side to side every two hours in order to prevent hypostatic congestion. Occasionally tube feeding will be required, as some patients become much more deeply narcotized than others, however, feedings of semi-solid food are usual when the patient awakens spontaneously.

The dose of sodium amytal is regulated according to the patient's response. If a small dose keeps him asleep from 4 to 6 hours, there is no need to increase it.

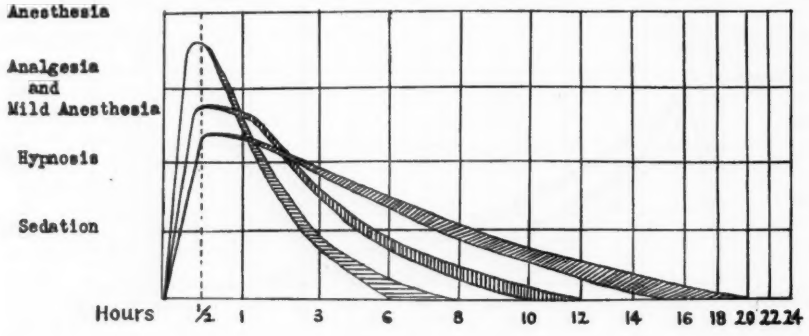
It is important to watch the patient in order to determine when the most favorable change occurs; this lucid interval should be used for psycho-therapy (some form of suggestion).

The duration of treatment will depend on the response of the patient. The moment the first contact is established, psychotherapy should be used freely in spite of the fact that it means interruption of sleep.

If rapport cannot be established it may sometimes be necessary to increase the dose of sodium amytal and the frequency and duration of the treatment in order to obtain it. Sometimes when previously quiet patients become disturbed during sodium amytal treatment, it is wise to withdraw the medication for a short time for the disturbance is no doubt a toxic reaction, but this disturbance is no indication for stopping medication altogether. I know of no signs for stopping medication except perhaps severe shock or any extreme physiologic change, for example, a temperature of 106° F.

3. ANALYSIS OF RESULTS

A. *Dosage.* The largest single dose by mouth was 27 grains. The smallest daily dose given was 3 grains; the average dose was 12 grains.



Oral Administration of Equal Doses of Three Representative Barbiturates. All of Which are Sodium Salts.

'Seconal' - 15 grains Pentobarbital Sodium - 15 grains

'Sodium Amytal' - 15 grains

CHART 4

There is no hard and fast rule set down for dosage; it must be governed by the condition of the patient. It is not desirable, except with extremely disturbed patients, to obtain deep narcosis. The object is to keep the patient in a twilight state in order that psychotherapy may be used to the best advantage. On the same principle one can not predict the length of treatment, or the number of sessions, nor should one be governed by the total intake. In my series of cases, one patient received as much as 1,400 grains; another as little as 21 grains during a period of treatment. The longest period of sleep was 21 days; shortest was 3; the average was 10 days. The average for the total intake of sodium amytal was 400 grains; the smallest intake per day was 3, the largest 110 grains. The ages of the patients varied from 18 to 40; the average age was slightly over 25.

B. *The Physiological Changes.* Observations of physiological changes were restricted to temperature, pulse and respiration rates, and systolic, diastolic and pulse pressures; these were studied and compared according to the duration of treatment and the quantity of drug consumed.

The average temperature changes remained uniformly independent of the duration of treatment. An increase was shown, however, in pulse rate and in both the systolic and diastolic pressures.

Table 2 contains the average highest and lowest values of temperatures, pulse and respiration rates, systolic, diastolic and pulse pressures observed on the second day of treatment. The second day was chosen because on this day the greatest number of toxic reactions occurred.

The only variation is the quantity of sodium amytal on the preceding day and the particular type of mental illness. One sees that fluctuations in the physiologic values mentioned are independent of the amount of drug consumed.

Summarizing, one may say that the following conclusion is justified. The response to the drug varies with each individual patient; neither the quantity administered nor the duration of treatment is a necessary determining factor in the occurrence of toxicity. Thus, some patients may receive enormous doses and be kept asleep for long periods of time without many appreciable toxic symptoms, while others with small doses and short periods of treatment may evince marked toxic symptoms. As an illustration the following cases may be cited:

S. M., who received 1400 grains of sodium amytal during 21 days did not present any toxic manifestations; another patient, R. B., began to show toxic reactions on the 3rd day of treatment after having received only 20 grains on the two preceding days. The highest physiologic values on the 3rd day were: temperature, 104.2 F., pulse rate, 120, respiration rate, 23, and blood pressure, 130 systolic and 80 diastolic. This patient also had a chill and was cyanosed. That his reaction was not due to any factor other than the drug was confirmed by the fact that the physiologic values became normal two days after withdrawal of the drug, and that five days after the drug was resumed the patient again presented toxic manifestation; this time the temperature was 106° F., the pulse rate 118, and respiration rate, 27; there were also a severe chill, considerable coughing, cyanosis and vomiting. During the four days preceding the appearance of these symptoms the patient received 108 grains, or an average of about 28 grains per day. The temperature, pulse and respiration rates and blood pressure returned to normal after withdrawal of the drug. The physical examination on both occasions failed to reveal any abnormal signs.

TABLE 2.—MEAN PHYSIOLOGIC VALUES ON FIRST AND SECOND DAY IN 61 PATIENTS TREATED 64 TIMES.

Grains	Temp.	Pulse rate	Resp. Rate	Syst. blood pressure	Diast. blood pressure	Pulse pressure
			1st Day			
0-79	98.6	98	20	109	72	37
			2nd Day			
	98.8	82	18	96	66	30

C. *Complications.* The complications which have occurred in this series have been mainly those of toxemia. The toxic manifestations recorded were: convulsions, hypostatic congestion, motor incoordination, nystagmus, depression of the respiratory mechanism, nausea, emesis, dry throat, mucus in throat, dysphagia, headache, dizziness, blurring vision, thick speech, cough, hiccough, cold and clammy skin, chill, cyanosis, excessive perspiration, skin rash, edema of lids, urinary incontinence, highest temperature, lowest temperature, highest pulse rate, lowest pulse rate, highest respiration rate, lowest respiration rate, highest systolic blood pressure, lowest systolic blood pressure, highest diastolic blood pressure, lowest diastolic blood pressure.

The following physiologic values were above the mean value: both highest and lowest temperature, pulse rate, respiration rate, both highest and lowest systolic and diastolic pressure (highest mostly on the fifth and lowest on the

second day). If urinary incontinence is to be regarded as a toxic manifestation, (as Kläsi regards it in his article) it occurred 70 times in patients who had not previously been incontinent. Next was emesis, which occurred 30 times. Another toxic manifastation which occurred frequently was cyanosis where the respiratory mechanism has been depressed. Mucus in throat, probably due to diminution of the cough reflex, occurred mostly on the second day. If only one of my cases was there oliguria, and in none, anuria. There was no albuminuria or ketosis.

On studying the toxic symptoms according to the day of sleep one finds that the greatest number occur on the second day; by the tenth day there are only one-third. Treatment was discontinued once in a patient whose temperature rose to 106 degrees F. No other toxic symptoms were alarming and were not considered sufficient indication for discontinuing treatment in spite of the fact that some patients had such low readings in temperature, pulse rate and respiration rate as 96.4, 48, and 12, respectively.

D. *Role of Psychotherapy.* Psychotherapy is important in the treatment for psychoses after rapport is established. Material can be obtained from patients under the influence of sodium amytal which may lead to a better understanding of the breakdown and sometimes may establish a psychogenic origin of the particular mental illness. At this stage when the patient is somewhat more alert, more eager to be helped and more sure and less fearful of his surroundings, suggestion is of the utmost benefit. Certain patients are more alert on certain days. These days may be called the "best days." The greatest number of "best days" have appeared on the sixth day of treatment, and the next greatest number of "best days" on the fifth and ninth days. As the "best day" I designate the day on which the patient is alert and in good contact, eager to be helped, eager to converse and exhibits a logical and coherent stream of talk. It is on such days that I have stopped medication abruptly and allowed the patients to be up and about. It is during the "best days" that psychotherapy should be accentuated.

Cases of mental diseases of similar classifications were divided into two groups. In one group the patients were treated with sodium amytal in doses similar to those administered in group 2, but without psychotherapy. In group 2 psychotherapy was used. The group with psychotherapy invariably showed from 50 to 100% improvement as compared with slight or no improvement in the other group.

E. *Reactions of Patient with Various Types of Psychoses.* Of 61 patients treated, 4 were treated twice and one was treated three times. All cases fall into 11 different categories of which the largest number is made up of hebephrenic psychoses. Arbitrarily I set four weeks as a time limit for checking the occurrence of improvement. If a patient improved or showed any favorable change after that time, the changes were not attributed directly to the effects of the drug and were not recorded as such.

In evaluating changes in a patient it is difficult to avoid the subjective element; nevertheless, I have endeavored to be objective and conservative and to designate favorable changes only when they were definite and unmistakable. I accordingly viewed my patients as unimproved, improved and recovered 25, 50, 75 or 100%, the last mentioned including insight and ability to return to previous occupations. The 25% improvement ratio refers to patients who were to adjust themselves in an institution on a low level but able to receive some form of occupational therapy. As 50% improvement I designate those who could adjust themselves at home on a comparatively inferior level. As 75% improvement were those who recovered completely but lack insight. On the basis of these designation of 61 patients who were treated a total of 64 times, 24.5% remained unimproved, 11.4% showed improvement of 25%, 18.03% improved 50%, 18.03% improved 75%, and 27.7% recovered completely. Of 10 manic patients 5, or 50%, recovered. In the depressed group, 4 of 11 or 36.6% recovered. In the schizophrenic group the simple and paranoid types gave no recoveries, the hebephrenic group gave 2 recoveries of 11, or 18.2% and in the catatonic group 2 of 6 recovered, or 33.3%. The only groups of cases in which complete recovery occurred were the reactive depression, somatic and toxic (drug) psychoses.

F. *Present Status of Patients 9 to 16 Months After Treatment.* In Table 7, which gives the present status of the patients, it is shown that 27 of the originally 61 treated patients are now considered to be recovered, ten having been trans-

ferred to this rating from previously unrecovered ratings. Of these ten, two are from the 50% improved group and eight are from the 75% improved group. The present status of patients is based on a uniform, post-parole questionnaire, which has been sent to all relatives of patients. Interviews have been had, when possible, with relatives and patients.

It may be argued that, if patients with manic-depressive psychoses recover without treatment, why treat them? Well, the answer is: Much time may be saved if the treatment is applied, also the added comfort, the easier management of the acute psychosis and the shortened period of hospitalization.

4. *Discussion.* The exact means by which the good results observed have been achieved are not yet definitely established, but certainly the conservation of the patient's energy must be a definite factor. Other factors which theoretically may play a part might be mentioned.

The complete helplessness which exists in narcotized patients and the at least unconscious recognition of this on the part of the patient may so condition these responses as to initiate a conduct habit of dependence upon and confidence in physicians and nurses, thus enabling uncooperative and antagonistic patients to become more docile and cooperative. I have observed a very definite reduction in patient's inhibitions with a strong tendency to spontaneous mental catharsis, requiring very slight stimulation on the part of the physician. It has been apparent that these periods of easier contact have been, in many cases, very fruitful periods of psychotherapy.

Finally, another factor, it may be possible that the prolonged, complete abandonment of reality represents a controlled equivalent of the psychosis itself during which the factor which might be termed a "psychotic obligation" is discharged rapidly in its entity.

SUMMARY

1. A method is presented of prolonged narcosis by the use of sodium amytal orally administered.

2. Technique: A twilight state is produced so that contact can be established for the purpose of psychotherapy. The duration of treatment will depend on the response of the patient. The moment the first contact is established, psychotherapy is used freely in spite of the fact that it means interruption of sleep. The longest period of sleep was 21 days; shortest was 3; the average was 10 days. One patient received as much as 1,400 grains, another as little as 21 grains during a period of treatment. The average for the total intake of sodium amytal was 400 grains; the smallest intake per day was 3, the largest 110 grains. The ages of the patients varied from 18 to 40; the average age was slightly over 25.

3. The average temperature changes remained uniformly independent of the duration of treatment. An increase was shown, however, in pulse rate and in both the systolic and diastolic pressures.

TABLE 3

	*Initially Unimproved				Initially Improved 25				50				75				100			
Present Status	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Schizophrenia																				
Simple	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hebephrenic	2	..	..	..	5	..	2	..	..	..	..	..	..	..	..	..	..	..	2	..
Catatonic	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..
Paranoid	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Manic-Depressive																				
Manic	..	..	..	..	..	..	..	..	..	..	2	..	..	..	3	..	..	..	5	..
Depressed	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	2	..	..	4	..
Reactive Depression									..	..	..	..	..	..	..	..	..	..	2	..
Anxiety State	..	..	..	..	..	..	..	..	..	4	..	..	..	..	3	..	..	..	..	..
Somatic	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Toxic	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Mental Deficiency	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Total	15	0	0	0	0	5	0	2	0	5	2	0	0	1	8	2	0	0	17	0
	15				7				7				11				17			
	Unimproved—15				Improved—11				Recovered—27				Relapsed—10				61			
	24.5				18.03				45.7				16.3				100			

Status from 9 to 16 Months After Treatment

*A—Unimproved; B—Improved; C—Recovered; D—Relapsed

4. The response to the drug varies with each individual patient; neither the quantity administered nor the duration of treatment is a necessary determining factor in the occurrence of toxicity.

5. Complications which occurred were mainly those of toxemia. The main ones were: skin rash, cold and clammy skin, depression of respiratory mechanism, emesis, dry throat.

6. Psychotherapy should be used on the best days. "The best day" is that day on which the patient is alert and in good contact, eager to be helped, eager to converse and displays a logical and coherent stream of thought. It is on such days the drug is stopped and psychotherapy is used.

7. Reactions of patient: Of 61 patients treated, 4 were treated twice and one was treated three times. On this basis 24.5% remained unimproved, 11.4% showed improvement of 25%, 18.03% improved 50%, 18.03% improved 75%, and 27.7% recovered completely. Of 10 manic patients 5, or 50%, recovered. In the depressed group, 4 of 11, or 36.6% recovered. In the schizophrenic group the simple and paranoid types gave no recoveries, the hebephrenic two out of eleven, or 18.2%, and in the catatonic group 2 of 6 recovered, or 33.3%. The only groups of cases in which complete recovery occurred were the reactive depressions, somatic and toxic (drug) psychosis.

8. All patients treated were select cases.

9. This method is recommended for use in general hospital and private homes.

10. I believe this method of treatment, if carried out under proper conditions, is within the limits of reasonable safety, and that the added comfort, the easier management of the acute psychosis and the shortened period of hospitalization justify further usage, which will more clearly determine the value and the limitation of the method.

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RABIES IN ILLINOIS 1936

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The magnitude of rabies as a public health problem is well exemplified by the trends indicated in the following table:

TABLE 1*

Year	Animal Bites	Positive Heads	Human Deaths
1931	4,356	215	3
1932	6,286	258	1
1933	6,508	275	6
1934	7,590	576	7
1935	11,053	649	5
1936	18,466	814	11

In view of this fact, it was felt that at this time a detailed analysis of human cases of animal bites who had received antirabic inoculations and also human cases of death from rabies, would be pertinent and apropos. A total of 1,131 cases of animal bites or exposures who had received inoculations were studied, and in addition 11 cases of human rabies deaths.

In table 2 is given the gross classification of the type of exposure to rabid or suspected rabid animals.

TABLE 2. NATURE OF EXPOSURE TO RABID ANIMAL

Uncovered skin	577
Through clothing	231
Superficial	500
Deep	278
Contact but not bitten	351

*These figures should not be considered as portraying the actual number of people bitten or the incidence of rabies in animals. There are unquestionably hundreds of unreported bites in humans, and there are undoubtedly many rabid animals whose heads are never brought to the laboratory for diagnosis, and many heads from rabid animals so badly decomposed that diagnosis is impossible.

Tables 3 and 4 analyze the superficial and deep bites according to body distribution.

TABLE 3. DISTRIBUTION OF BITES, 1936: DEEP

Arm	122
Leg	97
Face	43
Arm and Leg	6
Trunk	3
Arm and Face	1
Unclassified	6
Total	278

TABLE 4. DISTRIBUTION OF BITES, 1936: SUPERFICIAL

Arm	273
Leg	135
Face	46
Arm and Leg	11
Arm and Trunk	3
Arm and Face	3
Face, Arm and Trunk	1
Arm, Leg and Trunk	1
Leg and Face	1
Unclassified	25
Total	500

Tables 5 and 6 give details of the type of animal exposure in cases bitten or exposed only by contact.

TABLE 5. TYPE OF ANIMAL INFLICTING BITE, 1936

Animal	No. of Bites
Dog	1002
Cat	54
Cow	19
Hog	9
Calf	9
Muskrat	1
Squirrel	1
Bull	1
Mule	1
Rat	1
Total	1097

TABLE 6. TYPE OF ANIMAL EXPOSURE IN CONTACTS NOT BITTEN

Animal	No. of Exposures
Dog	296
Cow	14
Human	31
Calf	5
Cat	1
Mule	1
Calf and Horse	2
Squirrel	1
Total	351

Table 7 gives a resume of the type of local treatment in the 1,131 cases of animal bites and exposures studied.

TABLE 7. RESUME OF LOCAL TREATMENT IN 1,131 BITES STUDIED

Treated with Nitric Acid	210
Treated with other than with Nitric Acid	349
Not Treated Locally	221
Contacts but not Bitten	351
Total	1131

Table 8 gives a detailed analysis of the diversity of chemical agents employed in the local treatment of the inflicted wounds.

TABLE 8. DIVERSITY OF ANTISEPTIC AGENTS, APPLIED TO WOUNDS DUE TO ANIMAL BITES

Nitric Acid	210	Kerosene	5
Tinct. Iodine	130	Peroxide	3
Phenol	63	Cautery	3
Mercurochrome	47	Sulphuric Acid	2
Tinct. Merthiolate	19	Hexylresorcinol St. 37	2
Alcohol	13	Listerine	1
Turpentine	12	Bichloride	1
Tinct. Metaphen	10	Creolin	1
Soap and Water	9	Permanganate	1
Silver Nitrate	6	Iodine and Bichloride	1
Lysol	6	Sutured	1
Phenol and Iodine	6	Ultra Violet	1
Formalin	6		

Table 9 shows the time elapsed between the date of bite or exposure and the institution of antirabic prophylaxis. It is evident that the majority of the cases had begun the series of inoculations within one week after the animal bite.

TABLE 9. DELAY IN BEGINNING ANTIRABIC INOCULATIONS

Interval Elapsed	Cases
0— 4 days	570
5— 7 days	315
8—14 days	182
Over 14 days	40

The longest interval between date of bite and beginning of inoculation was 31 days.

The case histories in brief of the human deaths from rabies in 1936 are as follows:

Case 1. Male, aged seven years; deep bite on left lower lip; wound treated locally with carbolic acid; wound closed by three skin clips; no antirabic vaccine given; incubation period 31 days.

Case 2. Male, aged 25 years; superficial bite on left thumb; no local treatment of wound; no antirabic vaccine given; incubation period 46 days.

Case 3. Male, aged 34 years; superficial bites on both ankles; no local treatment; 14 doses of antirabic vaccine given; 10 days elapsed after bite before treatment was begun; incubation period 113 days.

Case 4. Male, aged 50 years; deep bite on left arm above elbow; mercurochrome applied locally; no antirabic vaccine given; incubation period 33 days.

Case 5. Male, aged 9 years; not bitten but had abrasions on hand and contacted rabid dog; no local treatment; no antirabic vaccine given; incubation period 40 days.

Case 6. Male, aged 4 years; deep bite on upper lip; wound sutured; 21 doses of vaccine given; three days elapsed after bite before inoculations were begun; incubation period 21 days.

Case 7. Male, aged four years; deep bite on face, wound treated with phenol and alcohol; would closed with three dermal sutures; 21 doses of vaccine given; three days elapsed after bite before inoculations were begun; incubation period 38 days.

Case 8. Male, aged five years; not bitten but had mosquito bites on hands and handled rabid dog; no local treatment; no antirabic vaccine given; incubation period 18 days.

Case 9. Female, aged 10 years; details unknown except that patient had been scratched by a cat two weeks before onset but at the time of her demise the cat was still living (questionable case).

Case 10. Male, aged 50 years; deep bite on upper lip extending into the mouth; no local treatment; 21 doses of vaccine given; three days elapsed between bite and beginning of inoculations; incubation period 15 days.

Case 11. Female, aged 50 years; three deep bites above left ankle. Treated locally with fuming nitric acid; no antirabic vaccine given; incubation period 15 days.

While it is true that the tables are self-explanatory, nevertheless it is well to emphasize certain of the important features portrayed. We note that more bites occur through the uncovered skin than through skin protected by clothing, which is in accord with the latest report from the League of Nations.[1] In Illinois the number of superficial bites exceed the number of deep bites which conforms with the aforementioned report. Seemingly, there were a large number of individuals who received antirabic inoculations not because they were bitten but because of contact with rabid or suspected rabid animals. This immediately brings up the question of the potential danger involved when rabid saliva comes in contact with the skin surface. It is generally agreed that if the individual has abrasions on the hands, for example, and handles a rabid animal, the virus may penetrate through the medium of the abrasions and infect the individual. Unfortunately, a skin surface which may appear to be intact may contain minute abrasions which are not discernible to the naked eye. These abrasions may serve just as well as a portal of entry for the virus as abrasions of larger diameter. One can only conclude that as a measure of safety, an individual who has been grossly contaminated with rabid saliva, whether abrasions are visible or not, should receive antirabic vaccine as a precautionary measure.

We find, as is generally known, that bites of the arms and legs predominate in frequency. It should be noted, however, that 8% of the superficial bites studied were on the face and that 15% of the deep bites studied were on the face. The significance of face bites is too well known to require discussion and emphasis should only be made at this time on the fact that they are quite frequent.

We find as usual that most of the animal bites are inflicted by the dog, which merely reemphasizes the fact that fundamentally the control of rabies will depend for its effectiveness upon the control of the dog. Cat bites are second in frequency and in sequence from then on we find diverse animals involved in the biting. In table 5 we find that in addition to exposure to rabid animals there were 31 exposures to human cases of rabies, and there are some rather interesting and important facts in this regard. In practically all of these cases exposure was the result of attempted nursing, care and restraining of the patient. In all of these cases the individuals exposed were probably more grossly contaminated with rabid saliva than would occur from contact with rabid animals. In several instances in the handling of the patient, the individuals involved were scratched rather severely on hands, arms and face. The potential hazard in such cases cannot be overemphasized. In one instance of human exposure a different feature presented itself. The wife in this instance was being repeatedly kissed by her husband while in the prodromal and acute stages of rabies. Seemingly, the husband sought his wife's affection in this case because of the fact that he was extremely frightened about his condition and rather anticipated a fatal issue. While it is stated that rabies is a wound infection and that the rabies virus is harmless when ingested provided the mucosa is intact, in the case described, with such gross contamination one would not dwell too much upon what might be considered an intact mucosa.

The information portrayed in regard to local treatment of wounds due to animal bites becomes quite significant. It is generally accepted that the proper treatment of an animal bite in a region in which rabies is prevalent should be thorough cauterization with fuming nitric acid. In spite of this fact we find that only 18% of the bites studied had been treated in this accepted manner. More astounding still, we find that about 18% had received no local treatment whatsoever. When one glances at the variety of antiseptic and other agencies employed in the local treatment of such wounds, one marvels at the originality and creative ability of those who employed such forms of treatment. The local treatment of animal bites has been satisfactorily standardized and yet there is persistence in the deviation from an accepted method to the employment of agencies which have definitely been proven as not satisfactory.

In consideration of the human cases of rabies

we find that half of the cases were in children. Five cases received no vaccine. In nine cases the wound was not treated locally with fuming nitric acid, and of these, one was treated with carbolic acid, one with phenol and alcohol, one with mercurochrome, and six received no local treatment. In three of the cases the wound was sutured. It certainly would seem more than a coincidence that, of the 1,131 cases of animal bites and exposures who received vaccine and did not develop rabies, in only one case was the wound sutured, whereas among the eleven fatal cases the wound was sutured in three instances. In two of these cases the patient received 21 doses of vaccine and yet the result was a fatality. Mention should also be made of the fact that of the two human deaths occurring to date in 1937, in one case three skin clips were applied to the wound on the left hand. This patient did not receive prophylactic inoculations. It is questionable whether suturing animal bites in districts where rabies is prevalent is a rational procedure. It is poor surgery to suture a potentially infected wound immediately, and certainly animal bites come under this category. It is interesting to note that in all the human cases of rabies, there was one or more violations of accepted standard procedures. This can only indicate that thorough and complete information has not been properly disseminated as yet in this regard.

No attempt will be made to calculate mortality rates. We are only too familiar with the fallacy in trying to arrive at any conclusions, whether such rates are calculated on basis of total animal bites, total cases receiving vaccine, or cases in contact or bitten by known rabid animals. The potential inaccuracy is self evident in either case. The fact still remains, however, that human rabies is 100% fatal. This is more of a basis for rigid control rather than problematical mortality rates.

SUMMARY

1. Statistics have been presented on 1,131 humans who, during 1936, received antirabic vaccine because of bites or exposure to rabid or suspected rabid animals.

2. Case histories have been presented of eleven human deaths from rabies during 1936.

3. It is to be noted in every case of human death described there has been one or more violations of accepted procedures in such cases.

4. Out of 1,131 cases of animal bite only 18% had been cauterized with fuming nitric acid.

5. All wounds produced by the bite of an animal known or suspected of having rabies should be cauterized with "fuming" or strong nitric acid. The efficacy of such local treatment has been proven by Cabot,[2] Poor,[3] and Rosenau.[4] Phenol is not reliable;[5] nitrate of silver is valueless; actual cautery is not effective.[4]

6. Wounds produced by known or suspected rabid animals should not be sutured, if we may conclude anything from the high incidence of suturing among human deaths, and low incidence among humans not developing rabies. Fundamentally from a surgical standpoint, no potentially infected wound should be immediately sutured.

7. There are no known contraindications to giving antirabic vaccine. All ages and conditions should be inoculated if exposed. In the case of vaccine furnished by the Illinois Department of Health which is produced according to the Semple method, all doses are the same regardless of age, sex, severity of bite or location of wound. The number of doses must of course be determined by the severity and location of the bite. A minimum of 21 doses should be given on all face bites, hand bites and multiple wounds in any part of the body. In the case of 21 doses, two doses a day are given for the first seven days, and one dose a day for the next seven days.

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PRESENT STATUS OF PLASTIC SURGERY

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In the social and intellectual evolution of man, his instruments of progress and self-preservation are constantly being sharpened to a keener edge. Medicine as one of the instruments, exemplifies these changes in its own metamorphosis.

We have transcended the age when an obstetri-

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cian was looked upon as an immoral person because he dared to enter the chamber of a pregnant woman. We have just turned the corner of suspicion, when a neurologist was looked upon as an individual slightly "cracked." Brain surgery has graduated from the commonplace ice-bag and occasional lumbar puncture to a highly respected and indispensable specialty.

Likewise, plastic surgery has ceased to be a conglomeration of surgical odds and ends and random skin-transplantation. It too, has divorced itself from the barber age of general surgery. It is here to stay, for several reasons.

Historically, we have shown that the transplantation and moulding of viable tissue can readily be accomplished. Then suddenly the devastations of the World War provided the outstanding necessity for rational reconstruction of the maimed. After the war modern society with its speed, its machinery, its vanity; is providing us with injuries as numerous and almost as grave as those of the war. And that same society, to whom health is a necessity, with whom efficiency has been pushed to the point of virtue, and to whom physical appearance has become an indispensable commodity, is demanding that surgery do something more about its post-bellum and industrial injuries. Not only are we asked to preserve the injured part, but to return the efficiency of it.

The multitude and pecularity of these problems necessitated special application and consideration of surgical as well as physiologic principles involved. The quality of surgical technique had to be sharpened in minutest detail. New instruments had to be applied. Pre- and post-operative management had to be reconsidered in a light peculiar to these new problems. Special training was necessary to handle these cases intelligently.

Plastic surgery has been able to meet these obligations only by following and applying in a manner peculiar to its scope and problems, the principles and scientific dogmas of general surgery. On the Continent it has been obliged to perpetuate this vital service on an organized institutional basis. Incidentally, biologic studies in tissue growth have confirmed the rationale of the transplantation and moulding of viable tissues. And general surgery recognizes that a cure only begins with the excision of a part. Yet the surgeon, as a rule, under pressure of existing pathology can do no more. The plastic surgeon thus becomes an indispensable collaborator in the work of the general surgeon. The rehabilitation of the maimed and injured can in this wise be followed to its logical conclusion—the return of function and form in the execution of our privilege.

The historical background of reconstructive surgery is a matter of common knowledge.

The World War was the cradle of modern plastic surgery. During and after the war it became obvious that it was necessary to segregate those badly mutilated from the rest of the population, not only for purposes of treatment but for other reasons. These patients could not be returned until something was done about their hideousness. Hence the origin of the many institutions in Europe harboring the war maimed. Where these institutions were under strict scientific supervision it soon became apparent that much could be done in restoring the maimed and returning the crippled back to society. The results obtained in these cases by men of good surgical training aroused great interest all over the world. Since it became apparent that so much good was to be expected from plastics during the war, it was only a natural step to apply the experience of war to civilian life.

It is here that reconstructive surgery transcended the stage of intelligent first aid treatment; of the harelip operation and became a specialized branch of surgery, particularly upon the Continent, begging special training and application of surgical principles. The European forces interested in this branch of work finally became concentrated in four great centers. The largest of these, though not highly publicized is in Prague, where the Institute of Plastic Surgery, harboring one hundred or more beds at that time and over two hundred now, was inaugurated by the government itself and placed under the direction of Professor Burian, a man whose interest in plastics was only intensified as a result of his experience in three wars, covering an interim of twenty years. As an example of what has developed from these centers I shall discuss this one Institute and its work more in detail presently. Another great organization was that under Gillies in London who contributed much of what we now know of the surgery of the face. The third great center of work was that under Ombredonne in Paris who even before the war

gave much to plastic work. He now confines himself almost exclusively to rehabilitative surgery in infants. Joseph of Germany, though more interested in the cosmetic aspect, did much after the war to elevate plastic surgery from the carnal to the conservative and exact.

The machine age after the war, began to contribute mutilations almost as bad and numerous as those of the war. These with the many congenital deformities, which we always have with us, was the great problem of the now, rapidly developing specialty. More and more plastic surgery ceased to be looked upon as something confined to merely changing the facial contours. It began to be challenged with the reconstruction of parts as to form and function anywhere upon the body, and within the body.

In a broad sense, plastic surgery has for its purpose not only the rehabilitation of the anatomy and appearance of any given part but the restoration of function as well; in contrast with surgery in general, whose prime concern must first of all be directed to cure or relief; frequently causing unavoidable interference with function, depending upon the degree of surgical intervention necessary.

The functional shortcomings of any given part are quite frequently due to anatomic distortions or insufficiencies. Where the function of a part is restored, very often even the cosmetic results go hand in hand with it.

Hence the necessity of minute study in diagnosis of the functional peculiarities and their importance in an injury. This in fact is more important at times than anatomic peculiarities; or their extent on the surface, or in the third dimension. Most physical injuries, whether acquired or congenital, are rarely confined to a certain anatomic location or to one organ; consequently in the reconstruction of a part it is necessary to ascertain to what extent contiguous parts are involved in order to reinstate proper function; finally it is important to determine whether it is at all possible to renew a part which has been lost or destroyed in such wise that its function can return. It is these considerations which determine the amount and nature of the material used in the reconstruction, as well as the place from which it is best to supply it. The foregoing deliberations determine as well the method of preparation of the parts.

The autograft without question, of course, in any given case is better than the isograft. Thus far the skin has proven to be the most important material which we use in the reconstruction of not only areas denuded of their skin but other and deeper tissues as well. Especially is this true in the substitution of skin for mucous membrane where cavities are to be lined; for not to line a cavity is not to have a cavity.

Skin can be transplanted in one of two ways; as a free graft or as a delayed graft. The type of graft depends essentially upon the type, the location and the extent of the injury and the place from which the graft is to be taken. All but the tube graft have been known to surgeons for hundreds of years. The latter is a great addition to plastic surgery of modern times, and though usually credited to the ingenuity of Gillies of London, I prefer to think of it as a product of Burian of Prague, who had employed it extensively in the Balkan wars of 1911. Though most types of grafts were known to surgeons of yore, it is only the present day meticulous technique which lends these grafts to final usefulness. Grafts, skin grafts in particular, are today fashioned not only in accordance with the size and shape necessary, but in accordance with their blood and nerve supply as well. Hence we speak of an arterial graft because it is fashioned about a main artery which supplies it. It is because of the arteries of supply that we are able to create a graft with better nutrition and resiliency. It can be longer and the pedicle can be much narrower, wherefore it will reach further and "take" much easier. If such a graft can be tubed, it helps to prevent infection, desiccation and shrinkage. This is especially important in delayed grafts. The entire graft or as much of it as is possible should be tubed and especially is it important to tubulize the pedicle. In facial reconstruction it is especially important to use the tube graft or a double-deck graft. The latter is made by opposing the two raw surfaces and suturing them together.

The Esser technique has done much to contribute to the success of reconstructive surgery. It is the best procedure so far devised for the epithelization of cavities and it gives a better cosmetic result than any other method in use. In connection with this method it is usually recommended that the outer layers of the skin be used. We at the Plastic Institute in Prague

as a rule used whole thickness skin. This obviates a great deal of shrinkage and drying and usually dispenses with the necessity of post-operative prosthesis.

In the manipulation of muscular tissue one cannot be as radical as in the case of skin. Especially is this true with the muscles of the face. In the latter, it is necessary to use neighboring muscles or parts thereof in place of those that are missing. Femoral fascia is usually the source of supply for ligaments where these are needed. Where it is merely a question of filling out a defect without regard to function, transplantation of fat, or cartilage, as a rule is very successful. In replacing the bony parts of the face, foreign material is absolutely out of the question, with very few exceptions. I here mention paraffin and metals only to condemn them. Ivory is absolutely the best of foreign hard material that is being used, and even here if the result is good there is always the danger of sloughing following the slightest trauma. As a matter of fact it is usually not necessary to have to resort to foreign material, since in the average case there is enough material available in the patient himself. And yet there are specific instances where it is certainly advisable to use ivory as a preliminary in reconstruction; as for example in the remodeling of a flat nose of long standing. Here the normal paranasal muscle pull is so deranged, that the immediate implantation of cartilage only leads to its bending and distortion, until such time as the abnormal muscle pull is relaxed.

The status of plastic surgery can probably best be appreciated by citing one or two specific conditions. A very common and important procedure of course, is the repair of a harelip, and cleft palate. I choose to designate the co-existence of the two as "Palip".

Until quite recently, and with many operators it still is the only procedure, the Langenbeck technique was the main stay or entire operative method. Any harelip or cleft palate which can be operated upon in accordance with the principles of Langenbeck, associated with his relaxing incisions, will give just as good results by any other method. To get the best functional results, the Langenbeck method is insufficient. As I have said before, nature rarely chooses one isolated anatomic part in its destructive efforts. If we now come to think of the Langenbeck method as one of simple coaptation, which fundamentally it is, a good anatomic result may follow; but it is rarely that a parent brings a child to a surgeon because of a hole in the roof of the mouth or a split lip. What the parent is concerned with is the speech defect. The prime consideration in these cases is a formal functional result and this is seldom obtained by the Langenbeck technique alone. For obvious reasons nature in failing to complete the union of the lip and the palate has set up a parallel pathology in and about the nose. Langenbeck did not take this into consideration. His technique of coaptation also avoids another very important consideration in the repair of these cases. It is necessary to make two complete cavities out of one. As has been mentioned before, cavities must be properly and completely lined. It is only a result of the work of Veau of Paris and Burian of Prague that a technique was evolved which fulfilled the latter consideration. It was Veau's work on the reconstruction of the internal nose; specifically the floor of the nose; Burian's work on the reconstruction of the air passages including the external nose, that has made it possible through the medium of what now has naturally become a major operation, to accomplish good functional results in most cases of cleft palates. Here we have one example of the necessity for special research, training, and the setting down and religious adherence to definite principles in the manipulation of tissue for reconstructive purposes. Whatever work in this line is necessary in any given case must be completed before the child begins to talk and develops a pathologic substitute for speech. That in consideration of a good functional result; otherwise the condition can be operated upon at any age.

Congenital syndactylism can rarely be successfully operated upon according to a text-book on general surgery. The misfortunes and scarring following the usual procedures are too well known to be repeated. It is only the proper use of skin grafts and their protection that will give acceptable results. This necessitates proper knowledge of the management of grafts. All these cases should be operated upon between the first and second year of life, but much can and has to be done prior to the operation in order to loosen up and prepare the affected part for surgical intervention.

Much has been contributed by Gillies of London to the rehabilitation of facial defects and

injury. Many principles of plastic surgery have been set down by him and his co-workers, which have made the reconstruction of the injured face a dependable surgical procedure. Any surgical interference in this region must take into account very minute details of anatomy and technique in order to arrive with proper results. Asepsis must be absolute; antisepsis avoided as much as possible; one must never employ silk sutures beyond a certain lateral to the line of incision; the skin must never carry tension and where tension is necessary the responsibility for it must be thrown upon the muscle and facial structures; topographic anatomy must be observed to the point of artistic demeanor. Where immediate interference following injury is not practicable or permissible, injured parts must be brought into as near normal approximation as is possible through the knowledge and technique of the surgeon; and the application of postoperative means such as diathermy, must be judicially and persistently employed in order to get good results.

In the reconstruction of the face, we are not only confronted by violent external injuries but internal injuries as well, arising from syphilis and tuberculosis; such as saddle-nose, and lupus in its various manifestation. There is little question but what surgical interference with *almost any type and stage of lupus involvement* of the face is the most rational procedure in the anticipation of a cure. In connection with syphilitic involvement of the face, a positive Wassermann is no contraindication to surgical intervention, provided the patient is under active treatment or has been for a period of at least six months.

The work of Allen Kanavel of Chicago on the reconstruction of mechanical and chemical injuries to the extremities, and particularly the hand, must take its place here. The social and economic import of this work is beyond computation. Right here permit me to add something to the surgery of the hand which is just as important as the reconstructive work proper. The conscientious physician has been so over-disciplined by the general surgeon in matters of first aid, that when he lays eyes on mutilated hands, his mind begins to run something like this: Infection — iodine — debridement — more iodine—more debridement. And before you know it, he is doing what amounts to an amputation. He is purely concerned with the immediate present; not thinking of the possibilities of reconstruction in the future. What he does not excise in his obsession to rid the wound of infection, he burns with disinfectants in his zeal for surgical antisepsis. Meticulous application of soap and water to every crevice of a wound is far superior to indiscriminate splashing of iodine and carbolic acid. Let us remember, skin and subcutaneous tissue are very resistant to infection, and if you must cut, please save as much of the skin as possible, for it is a valuable basis for subsequent plastic work and a source of blood supply for implants. The most taxing injury to the hand, taxing both to the injured and the operator, is the loss of the thumb. In such cases it is most important first of all, to provide the necessary skin and subcutaneous tissue to protect on the one hand, what bone is left and to prepare the field on the other, for what parts may be necessary in the future. It is only then that one can begin to think of ligaments and bones or the transplantation of toes to the hand for the purpose of incorporating them in the reconstruction of the digit.

In the lower extremities some of the most difficult problems are trophic and varicose ulcers. Simple skin transplantation in most cases is only a form of temporary relief, even though associated with sympathectomy. The same holds true of x-ray burns. A permanent result can only be obtained by the use of tubular grafts, which in these cases are very often difficult to manage and can only be depended upon at definite times, under definite management.

In discussing the present status of plastic surgery, one cannot help but touch upon the cosmetic aspect thereof. In this connection, one should mention many prominent French surgeons who have contributed much in this field, among them Ombredonne, de Fourmontel, Claoue and D'Artigue.

The relation of human topography to human temperament; physical appearance and mental makeup, when by us better understood will also be better appreciated. And then undoubtedly, cosmetic surgery will play a more significant part and hold a greater obligation. In the meantime it is definitely developing a technique which is in the hands of responsible men, both social, scientific and practical in its application.

The greatest problem now facing plastic

surgery is a better understanding of the nature and use of the isograft. Although several attempts have been made to use tissue from other patients and even animals, little success has followed. Personally I am satisfied in my limited experience with isografts, that the solution of the problem is not out of reach. It is only a matter of time and application of certain already known biological principles which in the near future will permit transfer of viable tissue from one body to another. Time does not permit me to discuss the technicalities and the interesting points involved.

From the foregoing it should be apparent that reconstructive surgery has something indispensable and dignified to offer to the field of general surgery. It has developed definite principles of procedure; a scientific technique and especially upon the Continent have these efforts been organized into productive institutions which find not only the support of governments but the approval of the profession itself.

As an example now I shall cite the Plastic Institute of Prague, its workings and accomplishments in picture form taken hastily during my association with the organization. It is an institution of over 200 beds, financed by the government and incidentally has proved to be one of the most flourishing and busiest places in Europe. It was the first Institution of its kind in the world and I am certain will, as a result of its success, serve as a good example for the planning and creation of similar outlets for the maimed and ill-born in other countries of the world. England, Russia, Bulgaria and Hungary are already laying plans. Here in America, where plastic surgery has suffered the influx of barbers and beauticians, there are nevertheless attempts to set aside working facilities for this rapidly developing field. And though we have an "Association of Plastic Surgeons of America," there is to date no definite organized or recognized institution where a scientific pursuit of the management of viable tissue for the purpose of reconstruction of the human form has as yet been attempted. But it is my honest belief that the time is not far off when we shall be able to train our young men in this rather difficult field of surgery. Some of our universities are vaguely thinking in this direction.

An attempt is being made individually by Blair of St. Louis, a man of wide experience in the general field of surgery, who definitely forsees the need and rationale of such training. But as yet that attempt has not transcended the stage of skepticism on the part of the nose and throat man, the eye specialist, the dermatologist and various other specialists, who naturally look askance at this newcomer in the surgical field. And yet in places where reconstructive surgery has been placed upon an organized and working basis, it is delightfully surprising to find the cooperation that exists between these various specialists determined to produce the best possible in the restoration of function in the appendages of man.

58 E. Washington St.

DURATION OF ANESTHESIA WITH AN OIL SOLUBLE ANESTHETIC SOLUTION

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In 1936 an investigation was instituted to determine the various causes of pruritis ani in cases admitted to the service of Dr. Collier F. Martin in the Proctology Clinic of the University of Pennsylvania Graduate Hospital. The results of this investigation will be reported later. The various examinations and laboratory procedures required about two weeks to complete and during this time it was necessary to give the patients temporary relief in order to secure their cooperation.

The use of oil soluble local anesthetic solutions is not new, having been recommended by Yeomans, Gorsch and Mathesheimer[1] in 1927 and by Gabriel in 1929,[2] who recommended them for the control of pruritis ani because of the anesthesia of long duration produced by the types of drugs used, and the gradual release of the drugs from the oil. The solution recommended by Morgan[3] was decided upon because it is painless on injection, produces good anesthesia, and can be easily prepared by a pharmacist. It is a solution containing procaine base 1.5%, butyl-para-aminobenzoate 6%, benzyl alcohol 5% in sterile almond oil. It was kept in 30 c.c. rubber-capped bottles.

After warming the solution, injections were made deeply into the subcutaneous tissues surrounding the anus. Massage after injection helped distribute the solution. Care was taken not to inject the external sphincter both an-

teriorly and posteriorly, as this would produce a temporary loss of sphincter control. Ten cubic centimeters of the mixture were used for each patient. The injection caused no pain or burning sensation and no reaction occurred. The skin became anesthetic within five minutes after injection and the patients stated that the area felt "numb" and did not itch. The skin was tested by the prick of a needle to determine the area of anesthesia and this was repeated at each subsequent visit until sensation returned. The time elapsing between injections and the return of sensation was recorded in fourteen cases. It was noted that the relief from itching and the anesthesia correspond almost exactly, it being possible to determine the end of anesthesia by the presence of scratch marks in many of the cases.

Patient	Duration of Anesthesia
1	7 days
2	7 days
3	10 days
4	14 days
5	8 days
6	14 days
7	14 days
8	12 days
9	5 days
10	13 days
11	23 days
12	9 days
13	12 days
14	21 days

The use of the anesthetic mixture was then extended to minor anal operations and the palliative treatment of acute anal ulcer, and it was found to be very satisfactory. The anesthesia lasted until healing was well under way. In two cases there resulted a firm indurated area at the site of injection without evidences of acute inflammation. In another case, where the asepsis was imperfect, a subcutaneous infection resulted which lasted about two weeks, but subsided without abscess formation. In spite of the more superficial level of injection in the patients with pruritis, no induration or inflammation resulted.

SUMMARY

1. Skin sensation to pain and itching was abolished following the injection of an oil soluble anesthetic mixture deeply under the skin.

2. The freedom from pruritis continued during the period of anesthesia.

3. The period of absence of pain sensation and itching varied from 5 to 23 days with an average of 12 days for the series.

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DIAGNOSIS AND TREATMENT OF OCCIPUT POSTERIOR POSITION

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My reason for presenting a paper on occiput posterior position is because of its great frequency. Piper is inclined not to call it a complication or even an anomaly but rather a normal presentation. Its frequency is probably much greater than most records show, since many cases are unrecognized until labor is well advanced. Tweedy's 1% and Edgar's 4% probably apply to persistent occiput posteriors, otherwise the percentage would be much greater.

Some of the more recent reports show its greater frequency, probably due to earlier diagnosis before rotation has taken place. Danforth, recently reporting 443 out of a total of 1,565 private cases or an incidence of 27.1%. Scott in 1,000 consecutive cases found it to occur 144 times or an incidence of 14.4%.

Of my last 500 private cases 110 were occiput posteriors or 22%. Since many cases rotate spontaneously and escape recognition, this per cent. is probably too small.

Harper states that primary position of occiput is posterior in approximately 50% of all cases. Potter claims he finds it in 70% of his cases. One reason for the general impression that the posterior position is of infrequent occurrence is that statistics show that the occiput is found in front in from 70 to 90% of cases. This is true for the majority of posteriors rotate anteriorly and examination made after rotation has well begun reveals occiput in anterior position, making persistent posterior position relatively infrequent. Therefore statistics based upon examinations made at different times during labor, and particularly if late, are valueless in determining the frequency with which the occiput, at the onset of labor, is directed posteriorly. Furthermore the term posterior is applied by some

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authorities only to those cases in which the posterior position persists. If only the latter are called occiput posterior the infrequency of this presentation is very evident. For the above reasons most writers claim that the position is much more frequent than their records show. It is the persistent posterior that makes the condition of greater gravity than it should be.

Diagnosis. The diagnosis can be made with a reasonable amount of certainty before labor begins, unless obesity or rigidity of the abdominal wall or excess of liquor amnii make conditions unfavorable for abdominal examination. Inspection shows absence of normal uniform anterior convexity, the rounded arch of the back being replaced by the irregular ventral surface of the child so that a flattening or irregularity of contour of the abdominal wall is produced. A concavity just above the pubis instead of the normal convexity is usually evident. This is the space between the chin and chest and differs markedly from the much shallower depression found in the anterior position. The freely movable feet above and just to the left of the umbilicus is one of the most dependable signs upon which the diagnosis of R O P can be made and vise versa for the L O P. The movements of the feet can be seen quite often in thin persons.

On palpation the back is difficult to locate offering a firm rounded resistence in the right or left flank. The feet can be felt in the location above mentioned. As a result of imperfect flexion the head tends to occupy a higher level than usual. The cephalic prominence can easily be felt. It frequently remains freely movable after a time when engagement should normally have occurred. Such delayed engagement of the head should always suggest the probability of a contracted pelvis or a malposition of the head. If the pelvic measurements are normal the posterior position of the head is the most likely explanation. On vaginal examination the head is high and sometimes difficult to palpate. The cervix is located further back and the anterior lower segment is more elongated than in anterior positions. This posterior location of the cervix is nature's attempt at accommodation of direction of the birth canal to that of the long diameter of the head by posterior displacement of the cervix.

In neglected cases sometimes a large caput has obscured both sutures and fontanelles making diagnosis difficult.

On auscultation the fetal heart beat is heard with maximum intensity in the flank on the same side as the back. In cases of marked deflexion of head it may be heard on the opposite side rather low, in front due to the approximation of the chest wall of the fetus against the maternal abdominal wall. In cases of occiput posterior position the diagnosis of occiput anterior is likely to be made because of this location of the heart beat anteriorly. To avoid such a mistake always search for sounds equally as prominent in the opposite flank. Palpate the cephalic prominence on the side opposite the back and locate the feet. If these precautions were taken in cases suitable for examination few posterior positions would be missed.

On vaginal examination, if a caput has not formed, the anterior fontanelle can easily be felt and it is almost a positive sign of posterior position. After a caput has formed and the anterior fontanelle cannot be felt, by placing a finger on each frontal bone, the two bones can be made to move one upon the other, whereas a result of moulding such cannot be elicited at any other suture line in the vault. Palpating the ear is the most positive sign.

Much valuable information would be secured if every primipara could have an x-ray of her pelvis shortly before term. Any abnormality of the pelvis such as has been described by Caldwell, Molay and Thoms could be studied before labor begins, and we would also be able to estimate the relative size of head and pelvis by means of Roentgen pelvimetry and fetal cephalometry as worked out by Ball.

In occiput posterior position with good flexion labor will usually proceed favorably, other complications being absent. The underlying cause of the difficulty is lack of flexion of the head. O. Bjornson of Winnipeg, says the deflection is due to the posterior position of the convex fetal back against the convex maternal lumbar spine. This brings about extension of the fetal spine resulting, in turn, in extension of the fetal head.

Treatment. The majority of occiput posterior positions are not diagnosed before labor begins. Possibly not very much can be done before labor does begin but some of the obstetricians of the British Isles, recommend the use of pads placed

between the anterior superior spine and the cephalic prominence and held in place by an abdominal binder. The patient should lie semiprone on the side opposite to that occupied by the child's back so that the action of gravity may supplement that of the pads in bringing the back and head around to the front. Watson is also enthusiastic as to the value of a pressure pad so bound or strapped against the anterior shoulder as to rotate it toward the opposite side, thus turning the whole fetal ellipse including the head to better relationship with the inlet. He makes the extreme statement that he has not failed in success by this method.

Danforth has well said the proper management of occiput posterior positions should begin with the first stage. In the first place on account of the frequent long drawn out first stage see that the patient gets plenty of rest. What we want is dilatation and rotation. Nothing is more effective to this end than that measure of rest and relaxation which is possible to secure, without actively interfering with the process of labor. For this purpose I think morphine is still the most reliable drug we have to relieve pain and produce relaxation, used either alone or by the synergistic method of Gwathmey. This method we used for years and found very satisfactory. Patients still ask for rectal ether. Since the advent of pentobarbital we seldom use the rectal anesthesia. We are now trying paraldehyde but have not had enough experience with it to draw any conclusions as yet. There are so many ways of relieving pain in obstetrics but none are ideal. Each physician has the method he is most familiar with and with which he is most successful.

In the second place see that the patient gets nourishment. This should be largely liquid, nonresidue diet for one should always keep in mind the probability of having to administer a general anesthetic. Adair reports one case of fatal aspiration pneumonia. Plenty of carbohydrates, milk soups and fruit juices every 3 or 4 hours is a good rule. In long labors which are frequent in posterior positions the importance of nourishment is evident as an aid in prevention of exhaustion and constriction ring dystocia. If one will anticipate these long labors and insist on patients taking nourishment, exhaustion and acidosis, which Rudolph has demonstrated often is the cause of and precedes the formation of the constriction ring, may be prevented.

After the head is fixed in the inlet we have the patient lie on the side to which the occiput points. This position is not considered of much importance by many authorities but I have always had a certain amount of faith in it and still use it. Since the patient has to lie in some position we may as well give her the benefit of the doubt.

The bag of waters should be preserved until the end of the first stage of labor. After complete dilatation it is not safe to wait longer than 2 or at most 3 hours because of the danger of a constraction ring.

If head is floating, but no disproportion, rupture of the membranes when dilatation is complete or nearly so will hasten the engagement and moulding of the head so that in an hour or two we can proceed with manual rotation and forceps after the method of Danforth. If the head has not engaged and there appears some indication to terminate labor, version is the operation of choice unless Cesarean section is indicated.

In some the occiput will rotate posteriorly and if the baby is small, or the patient is a multipara, having strong pains, she may deliver in that position. Douglas has recently shown some very good statistics with delivery by forceps in the posterior position. I am not particularly concerned about that large group of cases in which, especially in multiparae, after full dilatation and rupture of the membranes, the head rotates with the next few pains and delivery occurrs normally. In this series 49 rotated and delivered normally with the exception of 2 in which low forceps were used. It is the persistent posteriors that give us the most trouble and which require close observation in order to know just when to interfere.

After complete dilatation the two methods of delivery which we favor are, manual rotation and forceps after the method of Danforth and version according to Potter's technique. When choosing which procedure to follow carefully weigh all factors before deciding on which operation to do. Other things being equal statistics show that the child is invariably a better risk advancing by the head than by the breech. In cases of occiput posterior careful attempts at manual rotation carried out slowly and with a

minimum of violence are preferable to the more rapid and forceful extraction that version necessarily entails. After one unsuccessful attempt at manual rotation we should not delay in doing a version, for the longer we wait the more difficult it is likely to be. We delivered 36 by manual rotation and forceps some of which might have rotated and delivered normally if given more time.

The following conditions are necessary for rotation. The head should be engaged and a fair degree of moulding taken place, otherwise after the head is rotated one would have the same difficulty in delivering as in a high forceps operation. It is desired to rotate the head in the pelvis but if necessary it may be disengaged, moulding having taken place, it will not be difficult to bring it into the pelvis after forceps are applied.

Manual rotation is such a satisfactory method that I think for the general practitioner, when confronted with this condition, it is probably the safest and most conservative procedure to do. The technique of manual rotation has been thoroughly described by Danforth. A few of the important points are:

1. Do not wait more than 2 or at most 3 hours after complete dilatation.
2. Use right hand internally.
3. Ether anesthesia sufficient to complete relaxation of the uterine muscle.
4. Rotate head with right hand, at same time pushing shoulder and back over with the left hand.
5. Proper application of forceps.

We prefer version for the following conditions since it can be done more rapidly.

1. Impending fetal or maternal death from hemorrhage.
2. Prolapse of the cord.
3. Rapidly advancing toxemia.
4. Indications of heart failure.
5. All cephalic presentations arrested high up wherein vaginal delivery is not contra-indicated because of pelvic contraction.

In doing a version if the head has had time to mould the danger of injury to the after coming head will be much less. Harper sums up the dangers in delivering the after coming head in the following:

"The dangers in breech extraction per se arise from possible delay in delivery of the after coming head, resistance to the advance of which is due to the fact that it is an unmoulded head that must engage, descend and be born in a relatively short interval following birth of the navel.

"Therefore, version and extraction under conditions that have denied the head the advantages of satisfactory moulding are procedures entailing risks to the child that one may unhesitatingly assume if the emergency warrants, but responsibility that one is not justified in assuming from choice."

If version is the procedure of choice, Potter's method is probably as good as any. D'Esopo has very aptly said, "Very few agree with his indications but nearly all subscribe to his technique." A few important points of this operation are:

1. Complete dilatation of the birth canal.
2. Complete anesthesia.
3. Long rubber gloves.
4. Rupture of the membranes rather high.
5. Bring down both feet if possible being careful not to straddle the cord.
6. Deliver buttocks in hollow of sacrum.
7. As buttocks are delivered favor anterior rotation of back.
8. Deliver arms anteriorly.
9. Deliver head in oblique position.
10. Two fingers in baby's mouth to aid flexion.
11. Pressure with other hand over pubis after arms are delivered.

I have never found it necessary to use forceps on the after coming head. The following condition is very frequently seen in occiput posterior position: Membranes ruptured for 2 or 3 hours, head rather high with more or less moulding, cervix not completely dilated, anterior lip edematous. Something has to be done. It is not safe to wait too long after rupture of membranes. These are cases in which rotation is often difficult or unsuccessful. We prefer version as a primary operation. In this series version was performed 18 times, 16 times as a primary operation and twice after rotation failed.

I am familiar with forceps rotation only through the literature and as yet, have seen no reason to adapt it. I feel there is greater danger of maternal and fetal injury than rotating by hand.

Is it ever justifiable in occiput posterior position to deliver by Cesarean section? It probably is, more often than was previously thought.

Paine, in a recent paper on occiput posterior position says, "If labor fails, indicated by decrease in the duration and frequency of uterine contractions, before dilatation of the cervix is complete, obstetrical judgment alone can esti-

mate, in a given case, if delivery from below will be attended by reasonable success or if Cesarean section is not the wiser procedure."

In this series 6 were delivered by Cesarean section. All were given the test of labor.

Case 1. A primipara 36 years old entered the hospital July 10, 1936, having irregular pains. After being in labor for 48 hours, Cesarean section was advised but permission was not given until x-ray pelvimetry showed that there was a disproportion of 190 cc. A baby boy weighing 10½ pounds was delivered.

Case 2. A primipara, aged 39 years. Membranes ruptured before labor began. Pains started June 24, 1935, about midnight. Dilatation complete at 5 PM. Rotation and forceps attempted at 7 PM. but unsuccessful because of contraction ring. Cesarean section was performed while the patient was still asleep and an 8 pound 12 ounce boy delivered. This was a case where Cesarean section should have been done earlier since the patient was an old primipara with early rupture of the membranes. The patient had rather a stormy convalescence but recovered completely.

Case 3. A primipara 30 years old due April 12, 1937. Pelvic measurements slightly below normal. A diagnosis of occiput posterior could not be made with certainty because of obesity. The patient gained 45 pounds during her pregnancy and went nearly two weeks over her expected date for confinement. X-ray plates showed fetus in L.O.P. position. Measurements made with Ball's pelvicephalometer showed a disproportion of 180 cc. Because of this it was thought best to do a Cesarean section which I did April 25 after a few hours of normal labor pains. Baby weighed 8 pounds and 14 ounces.

Cesarean section was performed on the other 3 cases after each had been given the test of labor. The average weight of each baby in which Cesarean section was performed was over 9 pounds.

In long dry labors success from below is frequently impossible. If mother and baby are in good condition Cesarean section should be seriously considered.

If we all could be as successful in treating contraction rings as Rudolph and Harper, Cesarean section should never be necessary. Rudolph has had very good results with medical treatment. He recommends soft and liquid diet consisting of 3000 calories of food rich in carbohydrates and 2000 cc of water for each 24 hours. Patients should be fed every 2 or 3 hours. She should receive sufficient sedative to ensure adequate rest and sleep. This management he says will prevent exhaustion and acidosis.

Harper says he has never seen a contraction ring fail to fade out under prolonged ether anesthesia given continuously to a surgical degree. He says it begins to fade after 15 minutes. In rings of long standing it may take an hour or more. Only once has he seen it fail and that was where pituitary extract had been given.

Pendleton, in a recent article on abnormal Bandle rings says that we should advocate more Cesarean sections and fewer podalic versions.

CONCLUSION

1. In all cephalic presentations occiput posterior position should be anticipated until definitely proven otherwise.

2. No one procedure is suitable for all cases. Weigh the different factors carefully before deciding which to do.

3. The patient should be given sufficient rest and nourishment in order to better stand a long labor which may have to be terminated by an operation.

TREATMENT

Spontaneous delivery without inference	47
Operative inteference	63
Spontaneous rotation and delivery	42
20 primiparae	
22 multiparae	
Posterior spontaneous delivery	5
1 primipara	
4 multiparae	
Spontaneous rotation and forceps	2
Manual rotation and forceps	36
Posterior delivery with forceps	1
Version	18
Cesarean section	6

RECORD OF CASES

Total number	500
Posterior positions	110 or 22%
Primiparae	69
Multiparae	41
R. O. P.	81
L. O. P.	29
Overdue	60
Average age of Cesarean patient	34 yrs.
Average weight of all infants	7¾ lbs.
Average weight of Cesarean infants	9 lbs.
Morbidity—Total	4
3 Cesarean	
1 manual rotation	
Maternal mortality	0
Infant mortality	2

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DISCUSSION

Dr. Thomas Bell Williamson, Mt. Vernon: Management of occipitoposterior position is a condition which has caused considerable discussion among obstetricians. The essayist has brought out his views and the views of a number of our leading men. With some of these I heartily agree, with some I do not.

The diagnosis of occipitoposterior position needs no discussion and I will apply my few alloted minutes to the management of the persistent posterior position.

It has been shown by actual timing that the labor is two to six hours longer, and that the uterine contractions are weaker in the posterior position than in the anterior position, therefore, I would advise strongly against the use of profound amnesia-producing drugs since it is imperative to have the full cooperation of the patient so she can bring the voluntary muscles into action and aid greatly in moulding the head and forcing it down into mid-pelvis, or better still to the perineum. However, I heartily agree that some mild form of sedation during the first stage is very beneficial, and if dilatation is slow, the fetus is in good condition, the bag of waters standing, or the head not fixed too firmly in the pelvis, so as to cause pressure necrosis, it is permissible to administer morphine to give the mother about two hours rest, then allow labor to proceed naturally. Amnesia-producing drugs should not be given during the second stage of labor since we need the full cooperation of the patient to effect moulding.

Nourishment, especially fluids, are very essential to the parturient, and if vomiting is present and the patient is in the hospital where intravenous can be given with safety, I would advise the administration of glucose solution.

The case presents an entirely different picture after the cervix is completely dilated or nearly so, and after the rupture of the amniotic sac. If the head continues its gradual descent we let nature proceed undisturbed, but if the head remains stationary for a period of two hours we must resort to operative obstetrics because of the danger of pressure necrosis to the soft parts of the mother.

There are two ways to handle this condition. First, if the head is small and well moulded the forceps may be applied over the ears of the child, a deep mediolateral episiotomy done, and the head delivered in the posterior position. Second, if the head is larger and the degree of moulding less, the method of choice would be the Scanzoni or double application of forceps. Often the head has to be disengaged to effect the rotation, and in that case, even though the forceps are upside down, it can be brought back down into the pelvis where it is less likely to turn back to the posterior position before the forceps can be applied properly.

Podalic version and extraction may be carried out in some cases, but it is certainly dangerous to attempt this if an hour or more has elapsed since the amniotic sac has ruptured because the uterus has clamped down tightly on the child and the danger of rupture of the uterus is greatly increased. However, if podalic version is done and we have difficulty in delivery of the aftercoming head by the Potter method it is much safer to apply forceps to the head and thereby eliminate the possibility of injury to the neck by undue traction in our anxiety to effect a rapid delivery.

If there is any indication for Cesarean section it should be diagnosed before labor starts, and done before rupture of the amniotic sac. The danger of infection increases with every hour after the loss of amniotic fluid and the mortality is high if section is done ten to eighteen hours afterwards.

I shall show some slides to demonstrate head moulding and application of forceps.

Dr. William Cooley, Peoria (closing): I enjoyed Dr. Williamson's discussion very much. He brought out points which I could not because of lack of time.

I agree with Dr. Williamson as far as profound narcosis is concerned. I think with occiput posterior sufficient narcosis should be used so that the mother does not become exhausted and thereby lessening the danger of a constriction ring.

So far as forceps rotation is concerned I think that is an operation no one but an expert should attempt for there is greater danger of injury to fetus and maternal soft parts than when the hand is used. I think it is largely a matter of one's training. I think forceps rotation is all right if one is familiar with the technic but for the average practitioner I do not think it is as safe as manual rotation.

I agree with Dr. Williamson that the proper time to diagnose disproportion is before labor begins. I hope the time will come, if the pelvic cephalometry of Ball proves successful, that every patient can have pelvic measurements made, and until that is done there will be cases now and then that will go into labor and have to be operated on more or less as an emergency, because the external measurements are not absolutely reliable. Forcing the head in the pelvis according to the method of Hillis has proved very valuable to me and I use it routinely.

LONGEVITY

Alexander the Great, Persius and Terence died just under or over thirty years of age. Keats, Shelley and Schubert had their careers cut short. How little this really proves is shown by the fact that the average age at death of the eminent men of antiquity was 66.7 years, while in modern times, 82 noted mathematicians averaged 64.3, 75 poets 64.1, and all the presidents of the United States 68.4. The figures so often cited about increasing the "expectation of life" and supposed to prove this or that, refer to expectation at time of birth. This increase is the result of removing many of the

perils of infancy and early childhood. In the modern era more babies grow up to maturity than before, but among people who arrive at maturity the average do not live to die at a greater age than formerly.

—Medical Bulletin.

THE TEN POINTS SUGGESTED BY THE JUDICIARY COUNCIL OF THE AMERICAN MEDICAL ASSOCIATION

First: All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

Second: No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.

Third: Patients must have absolute freedom to choose a duly qualified doctor of medicine who will serve them from among all those qualified to practice and who are willing to give service.

Fourth: The method of giving service must retain a permanent, confidential relation between the patient and a "family physician." This relation must be the fundamental and domination feature of any system.

Fifth: All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operation according to medical standards.

Sixth: However the cost of medical service may be distributed, the immediate cost should be borne by the patient if able to pay at the time the service is rendered.

Seventh: Medical service must have no connection with any cash benefits.

Eighth: Any form of medical service should include within its scope all qualified physicians of the locality covered by its operation who wish to give service under the conditions established.

Ninth: Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of incomes.

Tenth: There should be no restrictions on treatment or prescribing not formulated and enforced by the organized medical profession.

STILL ALIVE

Twenty years ago a man named Balthazar Balmint went to a hospital in London for treatment. It was discovered that he was suffering from a very rare bone disease, which would probably end his life very soon. The doctors offered to pay the sick man, on condition that he would will his body to them, one pound sterling per month during his life, and to give his heirs seven pounds sterling. However, Balmint is still living; the hospital continues to pay him an allowance, and this false diagnosis has already cost about 18,000 francs.—Naturisme (Paris), quoted in New York State J. Med.

Society Proceedings

WHITESIDE COUNTY

The Whiteside County Medical Society held its regular summer meeting and fish fry at Prophetstown, Ill., at which time three members of our society with a combined number of years in practice of one hundred and fifty-three years were honored.

The following members were honored:

Dr. H. J. Heusinkveld, Fulton, Ill., who has practiced fifty-three years in Fulton and is seventy-eight years old and still active in practice.

Dr. F. Fitzgerald, Morrison, Ill., who has practiced fifty-two years in Illinois.

Dr. Jane Keefer, Sterling, Ill., who has practiced forty-eight years in Sterling, Ill., and discontinued her office one month ago.

Dr. R. K. Packard, President of the Illinois State Medical, was present and gave an address on "The Practice of Medicine Then and Now."

Dr. W. H. Perry, Sterling, Ill., gave a talk on his recent visit to the Leprosy Colony in Honolulu.

There were fifty members and friends present.

Marriages

JACOB H. BROTMAN, Savanna, Ill., to Miss Sarah Paley of Clinton, Iowa, in Morrison, April 16.

THOMAS F. HARMON, Springfield, to Miss Eleanor Virginia Calley, of Oklahoma City, May 12.

LAWRENCE F. ISENHART, Mount Carroll, Ill., to Miss Marjorie Knowlton of Chicago, in Oregon, April 1.

ALBERT G. MARTIN to Miss Ruth Baker, both of Aurora, Ill., May 1.

FRANCIS GILBERT ZEIER to Miss Angeline Catherine Jochum, both of Chicago, recently.

Personals

Dr. John W. H. Pollard, health commissioner of Evanston for eleven years, has resigned, effective September 1, on account of ill health.

Dr. Karl M. Beck has been appointed superintendent of the Lake County General Hospital,

Waukegan; he will also serve as county physician and succeeds Dr. Charles Lieber, who is returning to private practice, it is reported.

Dr. Max Thorek addressed the Chicago Women's Club June 30, 1937, on "Chicago, the Medical Center."

Dr. Max Thorek has been made U. S. Delegate to the International Congress of Hepatic Insufficiencies which meets in France in September, 1937.

Dr. and Mrs. William Allen Pusey were honored in Elizabethtown, Ky., July 13, when a public reception commemorated their fiftieth wedding anniversary. The celebration was held at the Community House, which was given to the town by Dr. Pusey and his brother, Dr. Brown Pusey. Both were born in Elizabethtown. The former is a past president of the American Medical Association.

Dr. and Mrs. Thomas A. McTaggart, Pownee, observed their fiftieth wedding anniversary, June 22.

Dr. Arthur K. Drake has resigned as medical director of the Elmgrove Sanatorium, Bushnell, on account of ill health.

Maud Slye, A. B., associate professor of pathology, school of medicine at the University of Chicago, received the honorary degree of doctor of science from Brown University, Providence, R. I., June 21.

Dr. Julius B. Stokes, assistant medical director of the Ottawa Tuberculosis Sanatorium, Ottawa, has been appointed medical superintendent of the Livingston County Tuberculosis Sanatorium, succeeding Dr. Donald W. Tripodi, Pontiac, resigned.

Sewall Wright, Sc.D., professor zoology, University of Chicago, will address a joint meeting of the Institute of Medicine of Chicago and the Chicago Society of Internal Medicine, October 25, on "The Hereditary Factor in Abnormal Development."

Paul N. Leech, Ph.D., Secretary, Council on Pharmacy and Chemistry, American Medical Association, gave the commencement address at the Philadelphia College of Pharmacy and Science, June 9; his subject was "Intelligent Questioning."

Leslie B. Arey, Ph.D., Robert Laughlin Rea professor of anatomy, Northwestern University Medical School, received the honorary degree of doctor of science from Colby College, Waterville, Maine, at its one hundred and sixteenth commencement.

Dr. William J. Bryan, superintendent of the Missouri State Sanatorium, Mount Vernon, Mo., has been appointed superintendent of the Rockford Municipal Sanatorium, succeding Dr. Robinson Bosworth, who resigned recently to take charge of the St. Clair County Sanatorium, now under construction at East St. Louis.

Dr. Richard H. Jaffé, Chicago, discussed "Tumors and Tumor-like Lesions of the Breast" before the Sangamon County Medical Society, Springfield, May 6.

Dr. Julius Steinfeld, Peoria, discussed "The Principles and Medical Value of Psychanalysis" before the Peoria City Medical Society, May 4.

Dr. Thomas P. Foley has been appointed a member of the medical examining committee of the Illinois State Department of Registration. Dr. Foley was secretary of the Chicago Medical Society from 1932 to 1934 and president in 1936. He has been chairman of the department of medicine at Oak Park Hospital since 1929.

At the Annual Meeting of the Chicago Society of Internal Medicine the following officers were elected: president, Don C. Sutton; vice-president, L. N. Katz; secretary-treasurer, Clarence F. G. Brown.

Dr. Paul H. Harmon, Chicago, gave an illustrated talk on "Poliomyelitis" to the McDonough County Medical Society, Macomb, Illinois, on Wednesday, July 14.

Dr. Harmon also showed his moving pictures on "The Treatment of Poliomyelitis in the Residual and Stationary stages."

S. M. Feinberg addressed the Hancock County Medical Society July 21; subject, "Summer Allergy," at the Annual Summer meeting held at Hamilton, Illinois.

News Notes

—At the annual meeting of the Chicago Gynecological Society the following officers were elected: President, Dr. George de Tarnowsky; president-elect, Dr. David A. Horner; vice-president, Dr. Julius E. Lackner; treasurer, Dr. George H. Gardner; secretary, Dr. Edward Allen; pathologist, Dr. R. A. Lifvendahl; editor, Dr. R. M. Grier.

—Wards of the Illinois Children's Home and Aid Society are being tested for syphilis as a part of the general campaign against venereal diseases carried on throughout the state, it was announced July 11. The tests are being given to 2,000 wards of the society under the direction of Dr. Mandel Spivek of the Children's Memorial Hospital. The society has a turnover of about 500 children a year and as new wards are accepted they will be examined. This program is the first of its kind ever carried on by any children's aid organization in the country, it was stated. The project will cost between $3,500 and $5,000 a year and contributions are being sought to help defray the expense.

—A new four story wing to the Moline City Hospital, costing about $256,000, was dedicated May 10. The new addition provides four operating rooms, two delivery rooms and accommodations for forty patients, giving the institution a total capacity of 170 beds.

—The Chicago State Hospital was host to the Irving Park Branch of the Chicago Medical Society recently. In addition to Dr. Edward F. Dombrowski, managing officer, other speakers included Drs. Frank S. Rankin on "Sleep Induced by Sodium Amytal in Psychotic Patients"; Hyman H. Goldstein, "Traumatic Psychoses," and the late Barnet Lemchen, "Brain Pathology and Mental Alienation."

—The name of the Chicago Fresh Air Hospital has been changed to the Birchwood Park Sanitarium. The policy of the hospital has also been changed to permit physicians in private practice to send their patients to the hospital for personal treatment. Founded in 1909 as a tuberculosis hospital, the sanatorium has gradually changed during the past few years and now takes patients suffering from nervous disorders, heart disease and mild mental disease, aged and infirm persons requiring nursing care or rest, and diet cases. The name was changed to avoid confusion between the present policy and its original purpose.

—The window display, sponsored by the Chicago Medical Society and prepared by the Educational Window, in the Washington Street lobby of the Marshall Field & Co. Annex should be of interest to doctors. The material has been loaned by the Library of Northwestern University School of Medicine.

The window contains a picture of the founders of the Chicago Medical Society, a saddle bag used by a physician about one hundred years ago and instrument and medicine cases carried about fifty years ago.

—The Educational Committee is trying a new form of radio program which it hopes will appeal to the public. Instead of having seven or ten minute talks, the programs are in the form of dialogues with two physicians or one physician and the station announcer taking part.

—The newly created state division for physically handicapped children, state department of public welfare, held its first clinic in Shelbyville, June 25. Of seventy children of Shelby and adjacent counties who were examined, 60 per cent were under 10 years of age and about 80 per cent of them have been attending school despite severe handicaps, resulting from infantile paralysis, spastic paralysis and congenital deformities, among other conditions. No tuberculosis was found. Children in need of hospital care will be assigned to the Macon County Hospital, Decatur, and to St. John's Sanitarium, Riverton, it was stated. Other clinics are planned as a part of the department's program, which is financed by a state appropriation of $120,000 and a similar one from the federal government.

—Construction of a new building for Wesley Memorial Hospital began June 19 when Mr. George H. Jones turned the first spadeful of earth on the site at Superior Street and Fairbanks Court. Mr. Jones provided the funds for the building, which will cost about $2,000,000. The main portion of the building will be fifteen stories high, with a tower section extending four stories higher. The first floor will be used for executive offices, staff and lecture rooms, doctors' lounge, the admission department, two emergency operating roms and a necropsy amphitheater. On the second floor will be the physical therapy and x-ray departments, medical library and records, kitchens, dining rooms and cafeteria. The third floor will comprise a diagnostic unit, a general waiting room and a special department for eye, ear, nose and throat. The fourth floor will have fourteen operating rooms air conditioned all the year. The other floors will contain beds arranged in wards and in individual rooms. The entire twelfth floor will be devoted to obstetrics and be completely air conditioned. The seventeenth floor of the tower will be used for a lounge.

One floor of the new structure will be given over to adolescents. The building, which has been designed so that sunlight will reach every patient sometime during the day, will accommodate 420 beds. There will be 140 free beds available for teaching, while facilities for all classes of patients will be provided. Seventy rooms will be available for persons of moderate means. The present Wesley Memorial Hospital has occupied a site at Twenty-Fifth and Dearborn streets since 1888. In 1914 it was endowed with $1,000,000 for teaching purposes by the late James Deering in memory of his father and sister, William Deering and Abby Deering Howe. Under the terms of the deed, the staff of the hospital must be chosen from Northwestern University Medical School. The new building is expected to be ready for occupancy Dec. 25, 1938, the fiftieth anniversary of the first admission of a patient to Wesley.

Deaths

LOUISE ACRES, Western Springs, Ill.; Woman's Hospital Medical College, Chicago, 1890; aged 78; died, April 27.

EDWARD CARROLL ALVIS, Benton, Ill.; St. Louis College of Physicians and Surgeons, 1905; member of the Illinois State Medical Society; aged 66; died, April 30, of hypernephroma.

HARRY BRAWLEY BAILEY, Rockford, Ill.; Rush Medical College, Chicago, 1902; aged 59; died, May 7, in McAllen, Texas, of coronary thrombosis.

HAROLD FONSECA DA COSTA, Chicago; Loyola University School of Medicine, Chicago, 1922; member of the Illinois State Medical Society; aged 46; died, May 23, of coronary thrombosis.

SOL D. EBERSOLE, Chicago; Hahnemann Medical College and Hospital, Chicago, 1891; aged 71; died, April 10, of lobar pneumonia and nephritis.

JOHN CHRISTIAN EIGENMANN, Springfield, Ill.; Northwestern University Medical School, Chicago, 1897; aged 65; died, May 10, of malignant teratoma.

EDGAR GARLAND FERRIER, Oak Forest, Ill.; Jenner Medical College, Chicago, 1916; on the staff of the Cook County Tuberculosis Hospital; aged 57; died suddenly, April 16, in Chicago, of chronic myocarditis.

ELMER ALFRED GUNDERSON, Elgin, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1915; served during the World War; aged 44; on the staff of the Veterans Administration Facility, Hines, where he died, April 28, of pneumonia.

JAMES M. HANEY, Centralia, Ill.; Northwestern University Medical School, Chicago, 1897; member of the Illinois State Medical Society; aged 73; died, April 20, in St. Mary's Hospital, of carcinoma of the lung.

GEORGE WILLIAM HASKINS, Chicago; Chicago Medical College, 1889; professor of metallurgy, 1891-1892, and professor of metallurgy and of prosthetic technic, 1892-1897, Northwestern University Dental School; also a dentist; aged 78; died suddenly, April 30, of chronic myocarditis.

HARRY JOHN HERMAN, Jerseyville, Ill.; Northwestern University Medical School, Chicago, 1933; a Fellow A. M. A.; aged 34; died, April 15, of lobar pneumonia.

GEORGE PAUL KATZENSTEIN, Chicago; University of Pennsylvania Department of Medicine, Philadelphia, 1900; formerly instructor on diseases of the skin, Philadelphia Polyclinic; at one time on the staffs of the John B. Stetson Hospital and the Jewish Hospital, Philadelphia; aged 63; died, April 22, of cerebral hemorrhage and chronic nephritis.

IGNATZ LANGE, Chicago; Rush Medical College, Chicago, 1888; aged 75; died, April 27, in the Columbus Hospital of ruptured duodenal ulcer.

HENRY COVINGTON MACY, Chicago; Bellevue Hospital Medical College, New York, 1897; aged 70; died, April 2, of chronic myocarditis and bronchopneumonia.

SALLY JOSEPHINE MCCOLLUM, Chicago; Illinois Medical College, Chicago, 1898; Northwestern University Woman's Medical School, Chicago, 1899; member of the Illinois State Medical Society and the Associated Anesthetists of the United States and Canada; on the staff of the Women and Children's Hospital; aged 76; died, April 24, of arteriosclerosis, diabetes mellitus and lobar pneumonia.

HORACE R. RANKIN, Chicago; University of Louisville (Ky.) Medical Department, 1897; aged 67; died, April 11, in the Cook County Hospital, of pulmonary tuberculosis.

JOHN H. SAYRS, Zion, Ill.; Medical College of Ohio, Cincinnati, 1884; aged 79; died suddenly, April 12, of angina pectoris.

WILLIAM EDWARDS SHASTID, Pittsfield, Ill.; Jefferson Medical College of Philadelphia, 1886; member of the Illinois State Medical Society; formerly secretary of the Pike County Medical Society; aged 74; died, April 4, of cerebral hemorrhage.

VIOLA ELZADA SHAW TERWILLIGER, Bradford, Ill.; Northwestern University Woman's Medical School, Chicago, 1898; aged 65; died, April 21, in the Methodist Hospital, Peoria, of pneumonia.

HARRY WALTER WOODRUFF, Joliet, Ill.; Harvard University Medical School, Boston, 1933; resident in ophthalmology at the St. Louis (Mo.) City Hospital; aged 29; disappeared Dec. 29, 1936, and was found dead, April 27, near St. James, Mo.

JOHN ROSCOE YOUNG, Mattoon, Ill.; Eclectic Medical Institute, Cincinnati, 1888; aged 85; died, March 23, of uremia and nephritis.

ERLE WILL ZOOK, Peoria, Ill.; Rush Medical College, Chicago, 1895; aged 64; formerly on the staff of the Peoria State Hospital; died, April 7, of pneumonia following a sinus infection.

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